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Vol. 1 May 31, 1946 No. 21

UNITED STATES DEPARTMENT
OF COMMERCE

HENRY A. WALLACE, *Secretary*

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ERRATA:

P. 261. PB 3182. U. S. WAR DEPARTMENT. RADIO SETS SCR-536-A, -B, -C, -E and -F. (TECHNICAL MANUAL, TM 11-235, MAY 1945) 1945. 111 p. HAS RECENTLY BEEN MADE AVAILABLE BY THE U. S. SUPERINTENDENT OF DOCUMENTS AT THE PRICE OF $0.35 PER COPY.

CHEMICALS AND ALLIED PRODUCTS

Dyes

PB 19933. I. G. FARBENINDUSTRIE, FRANKFURT AM MAIN. Eigenschaften und anwendung der indanthrenfarbstoffe (Properties and application of indanthrene dyes). n. d. 392 p. Price: Microfilm-$6.00 - Photostat-$37.00
This book, designated by the firm as "strictly confidential" and issued "for personal use of our representatives only", contains full instructions for users of I. G. Farbenindustrie indanthrene dyes. All important points are discussed which must be considered for perfect results with any of the dyes with special attention to difficult and complicated jobs. Several types of fibers (cotton, mercerized cotton, rayon, cellulose fibers, silk, etc.) are used as examples in the application of specific dyes and dyeing methods, and special instructions are given for material of mixed fibers. "Tone-on-tone" dyeing receives specific attention, particularly in application to mixed fiber textiles. Starting with a general introduction, the book is divided into four parts, three of which contain textual material, the fourth a collection of tables. Part (1) deals with formulas for setting up the dye bath for a certain color ratio and the conversion of these formulas to other ratios, both for the original bath and for supplementation when partly used up. Examples for various types of dyes are given. Part (2) deals exclusively with methods for uniform dyeing of materials made of fibers of the same kind, source, crop, fineness, etc., on materials of the same kind but perhaps different crop or source, and on materials of mixed kind, type and physical properties. Part (3) deals with properties and special coloring behavior of indanthrene dyes, the precautions which have to be taken in using them successfully and technical problems coming up in the dye house. Part (4) contains most of the dye information dealt with in the other three parts in tabulated form. Some of the graphs and other material are in color, which of course, will show up only as black and white on reproduction. In German.

Detergents

PB 19329. I. G. FARBENINDUSTRIE. Richtlinien für die verwendung von zinkoxyd spezial in der seifenindustrie (Directions for the use of zinc oxide "special" in the soap industry). (Enlargement print of part of microfilm 185-2) Oct 1937. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
This is an advertising pamphlet of the manufacturer recommending the admixture of 1 - 1½% of zinc oxide "special" for greater economy and a higher yield of glycerin. In German.

Agricultural Chemicals

PB 19462. ALBERT, KURT. Verfahren zur herstellung eines streufähigen unkrautvernichtungsmittels (Method for manufacturing an herbicide (from residue after roasting pyritic ores) in powder form). (German patent 717917) Feb 1942. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
The residue is mixed with sulfuric acid and organic substances such as peat, wood flour, waste sulfite liquor, lignin, etc. are added to aid in the formation of a non-caking product.

PB 18777. JACOB, K. D. German fertilizers and soil fertility. (FIAT Final Rept 665) Dec 1945. 47 p. Price: Microfilm-50¢ - Photostat-$4.00
No important new developments either in fertilizer manufacture or in soil fertility research and practices were disclosed in Germany. Chemical nitrogen fertilizers are manufactured in Germany chiefly by fixation of atmospheric nitrogen as calcium cyanamide and principally ammonia. In comparison with practice in the United States, manufacture and use of compound and mixed fertilizers in Germany is not on an extensive scale. Considerable use is made of plant and animal residues and wastes in the preparation of composts and organic fertilizers. Peat is an important constituent of many of these products. Soil fertility investigations conducted in Germany during recent years include: The use of rapid chemical, biochemical, and biological methods for evaluating the fertility status of soils; the effects of boron, manganese, copper, zinc, vanadium, chromium, titanium, and other so-called minor or trace elements on the growth and development of plants; nitrogen fertilization of plants by means of Azotobacter; relation of humus to soil fertility, especially with reference to reactions involving humus and the clay constituents of soils; and statistical studies of crop responses to applications of potash. Appendix A lists organizations and individuals in the fertilizer and related industries, institutions and individuals engaged in soil fertility work, and libraries and depositories of soil science literature, that were visited for purposes of this report. Appendix B describes the manufacture of Rhenania phosphate by Kali-Chemie A. G. Appendix C gives the composition and characteristics of principal chemical fertilizers produced in Germany, including tables. Appendix D presents a selected list of publications relating to soil fertility. Appendix E, "Production and consumption of fertilizers in Germany," was not included in this report, but was sent to Food and Agriculture Subcommittee, Washington.

Plastics and Plasticizers

PB 19486. HOPFF and GOEBEL. High pressure polymerization of ethylene. Feb 1943. 23 p. Price: Microfilm-50¢ - Photostat-$2.00
This report is another translation of the German paper presented at the 26th Kuko (Plastics Committee) meeting in Ludwigshafen on Feb. 15, 1943. The paper (Kuko 155) is already reported under PB 11423, p. 598, and earlier under PB 6371, p. 474, this Bibliography, by Norman W. Krase. The translation presented here was prepared by Mrs. I. G. Callomon and Dr. C. M. Kline, of the National Bureau of Standards. From the polymerization of ethylene there results I. G. Wax A (Lupolen H). I. G. Wax A has proved to be useful as a casting material for the cable industry, as a compounding agent for use with Oppanol B 200 (polyisobutylene), and for wax polishes and shoe creams. As appendices there are enclosed 1. table showing properties of three polyethylenes, 2. eight photographs showing installations, 3. flow sheet showing preparation of I. G. Wax A at 200 atm. pressure, and 4. flow sheet showing preparation of polyethylene (Lupolen H) at 2000 atm. pressure.

PB 19486. HOPFF and KERN. Emulsion polymerization of ethylene. Feb 1943. 47 p. Price: Microfilm-50¢ - Photostat-$4.00
This report is a translation of the German paper presented at the 26th Kuko (Plastics Committee) meeting in Ludwigshafen on Feb. 18, 1943. The paper (Kuko 156) was reported under PB 11424, p. 598, this Bibliography. The translation is by Mrs. I. G. Callomon and Dr. C. M. Kline of the National Bureau of Standards. Attached is a flow sheet showing the results of the emulsion polymerization of ethylene.

PB 17351. I. G. FARBENINDUSTRIE. Igelit PCU-paste M spezial, zur herstellung von formkörpern (Igelit PCU-paste M special, for the manufacture of formed articles). (Enlargement print of part of microfilm 180-2) n. d. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
This advertising pamphlet announces this rubber-like plastic as a practical material for rubber stamps, grommets, rollers, and similar uses. The paste is put into a light form, made of plaster of Paris or other material and is heated in this form at 160° C. The paste can also be spread on a metal-strip to obtain a thin sheet. In German.

PB 17329. I. G. FARBENINDUSTRIE. Luresin F als harsstreckungsmittel bei der leimung von papier in holländer. (Luresin F as an extender for rosin for sizing paper in a hollander). (Enlargement print of part of microfilm 180-1) n. d. 5 p. Price: Microfilm-50¢ - Photostat-$1.00

This is an advertising pamphlet and describes Luresin F as a plastic which possesses no sizing properties itself but increases the sizing effectiveness of rosin up to 50% and sometimes more. It is added to the hollander after the rosin emulsion has been mixed with the raw materials, the sizing with potassium alum is done as usual. In German.

PB 17389. I. G. FARBENINDUSTRIE. Prüfung von oppanol-folien (Testing of oppanol sheets). (Enlargement print of part of microfilm 180-2) Jun 1941. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
This is a draft of a standardized specification for testing oppanol sheets making reference to mechanical, chemical and electrical properties of the material; it describes which testing procedures are necessary for the individual properties and establishes the minimum requirements. In German.

PB 19323. I. G. FARBENINDUSTRIE. Verfahren zur polymerisation ungesättiger organischer verbindungen (Method for the polymerization of unsaturated organic compounds). (Enlargement print of part of microfilm 185-1) Apr 1941. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
This draft of a German patent application refers to a method of polymerization of unsaturated organic compounds in an aqueous medium in the presence of water soluble peroxide compounds as polymerization catalysts. The method used is characterized by the use of small quantities of amino alcohols or their salts as an activating agent. In German.

PB 17349. I. G. FARBENINDUSTRIE. Verhalten von Perduren G und Perduren H gegen lösungsmittel und chemischen angriff (The resistance of Perduren G and Perduren H to solvents and chemical action). (Enlargement print of part of microfilm 180-2) Jun 1936. 19 p. Price: Microfilm-50¢ - Photostat-$2.00
This study was made by the manufacturer and published as a practical means of showing the user the behavior of these two synthetic rubbers in comparison with natural rubber. In German.

PB 19949. U. S. NAVY YARD, NEW YORK, MATERIAL LABORATORY. Report of test of life raft flotation cell material removed from DD939, German destroyer Z39. (Rept 4725-8) Mar 1946. 9 p. Microfilm-50¢ - Photostat-$1.00
The object of the test was to identify the principal constituent of subject sponge material and to determine physical properties of sample for comparison with properties of synthetic sponge material reported in Material Laboratory Report 4725-3. A small irregular shaped sample of light yellow sponge-like material was given a chemical analysis, compression-deflection tests, and inflammability tests. Chemical analysis showed that the sample consisted chiefly of plasticised vinyl chloride polymer. The compression-deflection data are shown on graph. Specimen melted during application of flame, but did not burn after removing the flame. An odorless charred melt adhered to the unburned portion of material. Subject flotation material shows high compression set and severe shrinkage due to heat aging. Photographs of specimen and of load deflection apparatus used in testing are shown.

PB 18888. WICKER, D. B. and HOFF, G. P. Investigation of textiles, I. G. Farbenindustrie, Bobingen. Oct 1945. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
This report details certain reactions and examples in the polymer classes known as the polyesters, polyureas and polysulfones. The work done so far by the I. G. is purely exploratory. This report also reflects a considerable amount of fundamental research and process development on amino caprolactam polymers. The properties of the end products are inferior to those realized in the United States and Great Britain on similar products where emphasis has been on polymers made from diamines and dibasic acids.

Paints, Varnishes and Lacquers

PB 19319. I. G. FARBENINDUSTRIE. Verfahren zur herstellung von überzügen (Preparation of coatings). (Enlargement print of part of microfilm 185-1) Jun 1941. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
High-grade coatings are obtained if varnishes, developed from solution or block polymerization products of butadiene or its homologues with the help of alkali metals with the addition of 1 - 5% of vulcanization accelerators and/or 5 - 20% of sulphur, are annealed at temperatures of about 120 - 220° C. In German.

PB 22628. MCBERTY, FORD H. Molybdate orange pigment. (FIAT Final Rept 804) May 1945. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
This document reports on visits to the I. G. Farbenindustrie plants at Genadorf, Gersthofen, and Verdingen. The development of the "mixed crystal" pigments, the molybdate reds or oranges, and the process of manufacture at Verdingen used in the early war years are described. These pigments consist of mixed crystals of lead chromate, sulfate and molybdate. They are characterized by exceptional strength and "blueness of tint," together with outstanding brilliance. As an exhibit there is attached a molybdate orange schematic equipment diagram. This typewritten carbon copy may not photograph well.

PB 18988. NEWMAN, S. G., and ROMANO, P. V. Investigation of Endurion after-treatment for protective phosphate coatings. (Springfield Armory Eng Dept Tech Rept WO-863 Prelim Rept - 1st Partial) Apr 1945. 14 p. Price: Microfilm-50¢ - Photostat-$1.00
The purpose of the tests of various Endurion color finishes made in this investigation was to determine their general characteristics and ability to improve the resistance of phosphate coatings to corrosion, heat, abrasion, cleaning materials, and other simulated service conditions. Phosphate coatings treated with Endurion finish appear to have more resistance to abrasion before and after heating to 350° F. than untreated phosphate coatings. The Endurion dye itself is removed in 25 to 40 wear cycles against a minimum total of 700 wear cycles for class A finish and 200 wear cycles for class B. Although trichlorethylene solvent has no harmful effect on the Endurion finishes, they are readily destroyed by alkaline cleaning solutions of moderate strength. Results of tests are shown in tabular form.

Inorganic Chemicals

PB 22624. LOVE, C. H., and MCBERTY, F. H. "K-3" silicon dioxide for rubber filler. (FIAT Final Rept 743) Apr 1946. 17 p. Price: Microfilm-50¢ - Photostat-$2.00
This report is the result of visits to the establishments in Germany of the "Degussa" or Deutsche Gold und Silber Scheide Anstalt located at Frankfurt am Main and Rheinfelden. The manufacture of white amorphous silica (of particle size 0.1 to 1.0 microns) is described, involving chlorination of 90% ferrosilicon and burning of silicon tetrachloride with hydrogen and air. The silica smoke is collected on a revolving drum. Possible uses are: as a replacement for carbon black in rubber; for transparent high temperature lubricating grease; for thickening acids. Appendices contain a schematic flow diagram as well as a list of personnel interviewed and references and samples. This is a carbon copy of a typewritten report and may not photograph well.

PB 22626. MCBERTY, FORD H. Anhydrous chlorides manufacture. (FIAT Final Rept 774) May 1946. 32 p. Price: Microfilm-50¢ - Photostat-$3.00
Equipment and process details are given for the German manufacture of anhydrous chlorides by high temperature chlorination at several I. G. Farbenindustrie plants. Operations described are: Aluminum trichloride at Ludwigshafen; iron trichloride at Bitterfeld; silicon tetrachloride at Rheinfelden; titanium tetrachloride, zirconium tetrachloride and

zirconium oxychloride at Leverkusen. As appendices there are enclosed flow diagrams and cross-sections of the chlorination retort.

PB 22625. MCBERTY, FORD H. Titanium products in Germany. (FIAT Final Rept 773) May 1946. 63 p.
Price: Microfilm-$1.00 - Photostat-$5.00
Titanium dioxide manufacture in Germany is described, and production and sales data are given, the only manufacturer being Titangesellschaft m.b.H, Leverkusen. Research accomplishements are outlined and patent applications abstracted. References are cited concerning vitreous enamels based on titanium dioxide (V-26 flux); use of the latter in welding rod coatings, dielectrics, and semi-conductors; and use of cemented titanium carbide in cutting tool tips. Among the appendices are patents and patent applications of Titangesellschaft m.b.H.; drawings showing details of calcination kiln; and statistics from annual reports of Titangesellschaft. Some pages of this typewritten report may not photograph well.

PB 22627. MCBERTY, FORD H., and WILCOXON, B. H. Bichromates manufacture. (FIAT Final Rept 796) May 1946. 61 p. Price: Microfilm-$1.00 - Photostat-$5.00
Manufacture in three plants of I. G. Farbenindustrie in Germany is described: Potassium bichromate and chrome alum at Bitterfeld and sodium bichromate at both Leverkusen and Verdingen. Special features include an unusual annular hearth kiln, a three-step reaction using lime only in third step, and acidification to bichromate using carbon dioxide under pressure. As exhibits there are enclosed cross-sections of the ring furnace and carbonation autoclave, photograph of ring furnace charging side, schematic diagrams of equipment, equipment list and performance comparisons as between Leverkusen and Verdingen. This material may not photograph well.

Ordnance Chemicals

PB 11559. CRANDELL, DOROTHY D. and others. The effect of soil and air temperature on the liberation of H. (CWS Toxicological Res Lab Rept 37) Jul 1944. 18 p.
Price: Microfilm-50¢ - Photostat-$2.00
The object of this experiment was to determine the effect of air and soil temperature on the rate of liberation of H (mustard gas) from air dried soils. It was determined (1) that when soil and air temperatures are increased over contaminated areas, H is liberated more rapidly, (2) that the increase of liberation is not proportional to the increase of vapor pressure of the agent, and (3) all soils do not show the same rate of increase of liberation. Attached are graphs which show the results of experimentation with the various soils.

PB 18940. GAY, GLEN. Dräger Werke, Lübeck and Hamburg. (BIOS Final Rept 175, Item 8) Jan 1946. 14 p.
Price: Microfilm-50¢ - Photostat-$1.00
The manufacture of chemical warfare protective equipment by the Dräger company was investigated, as this company was one of the largest German firms engaged in the production of life saving and breathing equipment for protection against toxic dusts and gases. Details of gas masks and of the equipment used in producing them is described, as is also the composition of various types of activated charcoal. The development of an impervious anti-gas clothing material to give protection against liquid vesicants is described. Casein-treated paper was adopted as the most promising. When casein became scarce, alternative materials were used, such as the fatty acids produced at Witten(Ruhr) as a by-product in the production of synthetic fatty acids. Clothing fabrics and clothing were also treated by impregnation with a water dispersion of Selloxin (chlorimide) and Chlorcoman. Results of the tests are given. The appendices contain the compositions of mixes used for masks and coating fabrics for masks.

PB 19257. KLOSKY, SIMON, and STRICKER, P. F. The physico chemical constants of chloropicrin. (Edgewood Arsenal Chemical Div Rept 11) Aug 1921. 22 p.
Price: Microfilm-50¢ - Photostat-$2.00
Data are given for practically all important constants except the heat of combustion. Sources of data are indicated, criticism is given and accepted values are summarized. Tables, bibliography and graphs of vapor pressure and density are included.

PB 19671. PAULSON, T. R., and others. Development of 4.2-in. chemical mortar M35R1. (CWS Tech Div Memo Rept 1202) Mar 1946. 56 p. Price: Microfilm-$1.00 - Photostat-$4.00
The object of the work described in this report was to develop a mortar conforming to the military characteristics prescribed in the project specification. It was recommended that: I. The mechanical features of the 4.2-in. chemical mortar M35R1 be incorporated into the engineering drawings of the 4.2-in. chemical mortar; II. Work be continued to develop an entirely new type 4.2-in. mortar using the information obtained during the development discussed in this report. The M37 mortar is well along in development and appears to meet or surpass all the requirements for long range mortar as set up by the Chemical Warfare Service Technical Committee. A bibliography, photographs and engineering drawings are included.

Analytical Chemistry

PB 16504. F & M. LAUTENSCHLÄGER, MUNICH. Universalpufferlösungen (Universal buffer solutions). (MIS VII 67b13 7000367) n. d. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
This is a merchandising brochure of the manufacturer. These buffer solutions are for use in the range of pH3-11 and consist of a mixture of a series of acids with good buffering qualities which are neutralized with alkali in accordance with the required pH. They contain no sodium- but only potassium-ions which makes them especially applicable for the calibration of glass electrodes; they are also very useful with quinhydrone, hydrogen and antimony electrodes. The appendix contains special direction for the use of these universal buffer solutions. In German.

Miscellaneous Chemicals

PB 19066. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. Safe handling of compressed gases. (Tech Bul ENG 39) Sep 1944. 44 p. Price: Microfilm-50¢ - Photostat-$3.00
This bulletin is designed to instruct military personnel in the safe handling of cylinders containing compressed gases. General precautions are given, as well as characteristics by which to identify each of the gases and precautions to be taken with each. Illustrations, tables.

PB 19254. WESTFALISCH-ANHALTISCHE SPRENGSTOFF A. G. Schriftwechsel-Amerika-reise, 21.4 bis 28.5.30, by Alfred Duttenhofer (Correspondence, trip to America, Apr 21 to May 28, 1930). (ALSOS Mission, Oberth 36) n. d. 152 p.
Price: Microfilm-$2.00 - Photostat-$11.00
The binder contains a collection of letters from and to Dr. Alfred Duttenhofer referring to his journey to the U. S., one 47-page and one 10-page enclosure to his letters describing his visits to and experiences in several U. S. firms manufacturing powder and explosives and plastics, the Ford factories in Detroit, and a 7-page business code used between the Westfalisch-Anhaltische A. G. and Dr. Duttenhofer. In German.

DETERIORATION STUDIES (INCLUDING TROPICAL DETERIORATION)

PB 22339, 22340. PB 22339. SIU, RALPH O. H. and WHITE, W. LAWRENCE. The microbiological degradation of cotton fabrics: Investigations conducted at the Quartermaster Tropical Deterioration Research Laboratory. (QM Microbiological Series Rept 1; QM Textile Series Rept 6) Dec 1945. 66 p. Price: Microfilm - $1.00 - Photostat - $5.00 PB 22340. WAGNER, R. P. and others. The effect of ultraviolet light on cotton cellulose and its influence on subsequent degradation by microorganisms. (QM Microbiological Series Rept 2; QM Textile Series Rept 7) Mar 1946. 70 p. Price: Microfilm - $1.00 - Photostat - $5.00

This report is designed to reveal and develop the scientific background required for intelligent progress in the improvement of protective measures for textile products, and should be of interest to both agricultural and medical agencies because of the extent of mycological investigations which were made and the use and adaptation of pertinent research techniques. The object is a campaign against tropical deterioration with emphasis on the fundamental aspects of its nature and causes, and development of effective measures for its prevention and control. It constitutes a summarizing appraisal of the scientific work to date (Dec 1945) at the tropical deterioration research laboratory and collaborating institutions on the degradation of cotton fabrics by microorganisms. The report gives a general technical abstract so that the material presented in detail in subsequent reports can be related to each other and integrated into the whole picture of tropical deterioration. From approximately 150 deteriorated samples of cotton fabrics, obtained from the Southwest Pacific, about 1800 fungus isolates representing 104 genera and 450 bacterial cultures were isolated. The largest group of the unnamed fungi cultures belong to the genus penicillium with Aspergillus a close second. Not all of the micro-organisms isolated from deteriorated fabrics are involved in the actual cellulolytic process. The loss in tensile strength of strips of bleached cotton sheeting inoculated with a spore suspension of the fungus on an agar mineral medium in 16-oz. French square bottles and incubated for 12 days was used as an index of cellulolytic activity. A list of the organisms tested is given in the report. Several usuable methods for culturing and testing of cellulolytic micro-organisms were developed. The use of liquid media is preferable. Conclusions are grouped in 3 classes: Class I: Very little reliable information is available so initial emphasis will be focused on the solution of : (a) Cellulolytic enzymes and enzyme inhibitors, (b) physiological mutants and metabolic intermediates, and (c) identification of bacterial isolates from deteriorated isolates. Class II: A fair degree of information is available and adequate projects are underway to investigate this class: (a) Determination of cellulolytic activity of causal microbiological agent, (b) identification of fungi isolated from deteriorated fabrics, (c) nutritional and environmental requirements of cellulolytic micro-organisms, (d) manner of fungal and bacterial penetration on cotton fibers, (e) relationship between molecular structure of cellulose and microbiological degradation and (f) chemical modification of the substrate as a method for the prevention of microbiological degradation of fabrics. Class III: This group includes those phases for which an adequate amount of knowledge has been obtained for present requirements. No work is in progress nor contemplated: (a) Isolation of causal microbiological agents, (b) culture methods for cellulolytic micro-organisms, (c) tolerance of cellulolytic bacteria to fungicides, (d) effect of exposure of cotton fibers to ultraviolet light, oxygen, temperature, and humidity on subsequent microbiological attack, and (e) resin impregnation as a method for the prevention of microbiological degradation of fabrics. The effect of ultraviolet light on cotton cellulose and its influence on subsequent degradation by micro-organisms is considered of interest to those concerned with the deterioration of cellulosic materials under outdoor conditions of exposure. It has been observed that an apparent increase in resistance to attack by micro-organisms resulted from exposure of textile materials to the action of weather. The research covered by this report is considered to have validated the theory of increase of cellulose fiber resistance by the action of ultraviolet radiation. This conclusion does not necessarily preclude the verity of other explanations, however, as several phenomena may be taking place simultaneously under the complex conditions of natural weather exposure. The following conclusions are drawn: (1) The Pressley Index of tensile strength of cotton fibers has been demonstrated to be a valid and convenient measure of the effect of ultraviolet irradiation and fungal action on cotton fibers, (2) as measured by the Pressley Index, the loss of tensile strength of cotton fibers due to action of ultraviolet light is independent of oxygen concentration and humidity, but is correlated with ultraviolet light intensity and temperature. There is a reduction in fiber tensile strength of approximately 20 percent after 4 hours exposure to ultraviolet radiation of an intensity of 1060 $mw/cm.^2$, (3) iron and manganese salts catalyze the degrading effect of ultraviolet light on cotton cellulose, (4) the ultraviolet portion of the spectrum as compared to the visible band is most effective in modifying the cotton fiber as far as tensile strength is concerned, (5) exposure to ultraviolet light increases their resistance to subsequent attack by Metarrhizium glutinosum U.S.D.A. 1334.2. During the first 4 days of fungus growth the average rate of degradation of the unirradiated fibers was twice that of the irradiated fibers, and (6) there was no difference in the rate of fungal attack on fibers which were irradiated for the same length of time and with the same light intensity but with different oxygen concentrations and humidities.

ELECTRICAL MACHINERY, EQUIPMENT, AND SUPPLIES

Communication Equipment

PB 13889. COLUMBIA UNIVERSITY. DIVISION OF WAR RESEARCH. AIRBORNE INSTRUMENTS LABORATORY. Handbook of instructions for R-21/ARQ-11, radio receiver. (OSRD Rept 1308-14) 1945. 37 p. Price: Microfilm-50¢ - Photostat-$3.00

This handbook provides information to enable maintenance personnel to make electrical repairs necessary to keep the radio receiver R-21/ARQ-11 of AN/ARQ-11 in good operating condition. Diagrams, tables, and photographs are included.

PB 14112. PETTIT, J. M. The D514 I-F amplifier for the AN/APR-4 receiver. (Harvard Univ Radio Res Lab Tech Memo 411-TM-43) Feb 1944. 6 p. Price: Microfilm-50¢ - Photostat-$1.00

This report presents a description and photographs of a wide-band amplifier which has a switchable bandwidth of either 9 mc or 0.6 mc.

PB 13599. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS. Navy aeronautical specification for Manufacturer's specifications for interphone amplifier AM-40/AIC, with Amendment No. 2, (dated 9 Sep 45) and Amendment No. 1 (dated 11 Apr 45). (NavAer M-659). Oct 15, 1944. 22 p. Price: Microfilm-50¢ - Photostat-$2.00

Includes specifications for type of controls, overall amplifier characteristics, mounting and wiring of components and of complete amplifier, detail requirements of connections, altitude switch, controls, filters, electrolytic condensers, dynamotor mountings, drawings, tropicalization, packaging and inspection.

PB 17749. U. S. NAVY DEPARTMENT. BUREAU OF ENGINEERING. Instructions: Model TAD-1 100-watt radio telegraph transmitting equipment (manufactured by General Electric Co.) (GEI 4207) 1929. 67 p. Price: Microfilm-$1.00 - Photostat-$5.00

This model and associated equipment was designed primarily for service on vessels where a compact, low power, high frequency transmitter was required. The frequency range is

from 2000 to 3000 kcs, the output 100 watts. The output on interrupted continuous wave telegraph is 40 per cent of the corresponding output obtained on continuous wave telegraphy. The equipment is designed to operate on four different power supplies using different equipment in each case. Descriptions of the component parts and their operation are given, together with instructions for installation, operation and maintenance; photographs; schematic, connection, and wiring diagrams; curves; and several General Electric Company instruction bulletins are included.

PB 17754. U. S. NAVY DEPARTMENT. BUREAU OF ENGINEERING. Instructions: Model TAD-2 100-watt radio telegraph transmitting equipment (manufactured by General Electric Co.) (GEI-5467) 1931. 97 p. Price: Microfilm-$1.00 - Photostat-$7.00
This model and associated equipment is designed primarily for service on vessels where a compact, low power, high frequency transmitter is required. The transmitter covers a continuous frequency range of 2000 to 3010 kilocycles, and the output on interrupted continuous wave telegraph will be approximately 40 per cent of the corresponding output obtained on continuous wave telegraphy. Included are detailed descriptions of the component parts, and their operation; instructions for installation, adjustments, and maintenance; outline, schematic, connection and wiring diagrams; plotted curves; and photographs.

PB 17776. U. S. NAVY DEPARTMENT. BUREAU OF ENGINEERING. Instructions for Model TEF-1 radio-telegraph transmitting equipment (manufactured by RCA Victor Co., Inc., Camden, N. J.) (IB-23257) 1933. 70 p. Price: Microfilm-$1.00 - Photostat-$5.00
The model TEF-1 transmitter is primarily designed for CW radio-telegraph service in the frequency range of 2000 to 4525 KC. The normal output is 500 watts for highpower operation or 75 watts for low power operation. This instruction book contains sections on the general description, description of units, theory of operation, vacuum tubes, remote control and keying, installation, adjustments, operation of transmitter, maintenance and lubrication, parts list, spare parts, supplementary data, including: Photographs, drawings and schematic diagrams.

PB 17755. U. S. NAVY DEPARTMENT. BUREAU OF ENGINEERING. Instructions: Radio telegraph transmitting equipment 100 watts output, Model TAD (manufactured by General Electric Co.) (GEI-2093) 1928. 43 p. Price: Microfilm-$1.00 - Photostat-$3.00
This model and associated equipment is designed primarily for vessels where a low-power, high-frequency transmitter is required. The frequency range is 2000 to 3000 kilocycles and the output on interrupped continuous wave telegraphy is approximately 40 percent of the corresponding output obtained on continuous wave telegraphy. Included are descriptions of the various parts and their operation; instructions for installation, operation, and maintenance; photographs; wiring diagrams; drawings; and several instruction bulletins of the General Electric Company.

PB 17779. U. S. NAVY DEPARTMENT. BUREAU OF ENGINEERING. Navy Model TBK-7 radio telegraph transmitting equipment. (Manufactured by Westinghouse Electric & Manufacturing Co. Radio Division, Baltimore, Md.). (I.B. 5904) Dec 1937. 119 p. Price: Microfilm-$1.50 - Photostat-$8.00
The navy model TBK-7 transmitting equipment is designed for installation and operation on all types of naval vessels except certain types of submarines. It is designed for CW transmission and has a maximum power output of 500 watts and has a frequency range from 2000 to 18,100 kc. The manual contains instruction on the installation , operation and maintenance of the unit. Parts lists, photographs, tuning curves, tables, schematics and wiring diagrams are included.

PB 17421. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book; Model TDB radiotelegraph transmitting equipment. (Manufactured by Radiomarine Corp. of America, New York, N.Y.) Apr 1942. 35 p. Price: Microfilm-50¢ - Photostat-$3.00
The high frequency radio telegraph transmitter described in this publication is designed primarily for marine applications, and provides a number of important operating characteristics not heretofore available. Full advantage is taken of the efficiency of modern beam vacuum tubes, together with simplified controls, and coverage of all assigned high-frequency bands for ship radio telegraph service. The frequency range is 2000 to 22140 kc, the output 200 or 150 watts, with CW and MCW emission. A description of the equipment and its operation; instructions for installation, operation, service adjustments; typical calibration data; lists of parts; photograph; and schematic wiring diagrams are included.

PB 17843. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for model TBY and model TBY-1 ultraportable ultra high frequency transmitting receiving equipments. (Manufactured by Westinghouse Electric & Manufacturing Company. Jan 1941. 70 p. Price: Microfilm-$1.00 - Photostats-$5.00
The model TBY and TBY-1 equipments are ultra-high frequency transmitter-receiver equipments of the ultra-portable or pack type. The units provide two-way communication by either voice (telephone) or MCW telegraphy on any one of 130 different channels throughout the frequency range of 28 to 80 megacycles. The nominal power output is 0.5 watts. The equipment is designed for transportation as a knapsack load and may be operated by one man. The manual contains instruction on the operation, maintenance and servicing of the units. Parts lists, photographs, schematics and wiring diagrams are included.

PB 17924. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for Navy model MN-3 radio transmitting and receiving equipment. (Manufactured by Fred M. Link, New York, New York.) Jun 1943. 46 p. Price: Microfilm-50¢ - Photostat-$4.00
Pertinent characteristics of this equipment follow: frequency range 30-42 mc, signal FM, power output -2 watts. Both receiver and transmitter are crystal controlled. The receiver has a single frequency only while the transmitter is designed for a maximum deviation of 15 KC from a fixed frequency in its range. This equipment is intended to fulfill the need for portable short range frequency modulated radio telephone communication equipment that can operate on either a.c. or battery power. Instructions for unpacking, tuning, operation, maintenance and service, parts list, charts and diagrams, are included.

PB 17750. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for Navy model TAJ-9 radio telegraph transmitting equipment (manufactured by General Electric Co.) (GEI-13421A) Feb 1940. 137 p. Price: Microfilm-$1.50 - Photostat-$10.00
This equipment is designed primarily for service on vessels where a compact, medium-power, intermediate frequency transmitter is required. The frequency range of this model is 175 to 600 kilocycles; nominal power output, 500 watts; and type of emission, CW and MCW. This equipment provides CW operation at any keying speed up to 100 words per minute at all frequencies within the frequency band specified, and is also designed for MCW operation in the same band at keying speeds up to 50 words a minute. Descriptions of the various parts, are given, together with instructions for installation, operation, and maintenance. Photographs, schematic and connection diagrams, drawings, lists of parts; and a number of General Electric Company instruction bulletins for magnetic controller, relays, motors, and tubes.

PB 17778. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for Navy Models TBL-8 and TBL-10 radiotelegraph transmitting equipment (manufactured by RCA, Victor Div., Camden, N. J.) (IB-26686) 1940. 155 p. Price: Microfilm-$2.00 - Photostat-$11.00
These equipments operate on any frequency in the 2000 to 18,1110 KC range and has a power output of 500 watts. Instruction book includes sections on installation, operation and maintenance of equipment, lists parts lists, supplementary data, photographs, drawings, schematics, calibration curves and wiring diagrams.

PB 17777. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for Navy Model TBL-12 radio-telegraph transmitting equipment (manufactured by RCA, Victor Div., Camden, N. J.) (IB-38105) Jan 1941. 163 p. Price-Microfilm- $2.00 - Photostat-$11.00
This equipment operates on any frequency in the range of 2000 to 18,100 KC and has a power output of 500 watts. Sections contain information on installation, operation and maintenance of equipment. Supplementary data, drawings, photographs, schematics, wiring diagrams, calibration curves, and parts lists are included.

PB 17773. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for Navy Models TCK-3 and TCK-5 radio telegraph and telephone transmitting equipments (manufactured by General Electric Co.) (GEI-17193) 1943. 114 p. Price: Microfilm-$1.50 - Photostat-$8.00
The navy model TCK-3 and TCK-5 transmitting equipment is designed for operation in the range from 2000 to 18,100 KC. The normal power output is 400 watts (CW) and 100 watts (phone). Sections of instruction book deal with installation, operation and maintenance of equipment as well as location and correction of trouble. Supplementary part listings, connection, schematic and outline diagrams are included.

PB 17419. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for Navy model TDT VHF transmitting equipment. (Manufactured by Aircraft Accessories Corp., Kansas City, Kans.) (NavShips 529127.) May 1943. 56 p. Price: Microfilm-$1.00 - Photostat-$2.00
This model of transmitting equipment is a compact semi-portable apparatus designed for point-to-point or ground-to-plane use. It provides for mcw or voice modulated emission with a normal carrier output of 35 watts and provides for coverage of all frequencies between 115 mc and 156 mc. This manual contains descriptions of the various parts of the equipment and their operation; instructions for installation, adjustment and operation, service and maintenance; lists of parts and manufacturers; tube data; drawings; photographs; and an over-all schematic diagram.

PB 17423. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for Navy model TDB-2 high frequency radio-telegraph transmitting equipment. (Manufactured by Radio-marine Corp. of America, New York, N.Y.) Jan 1944. 58 p. Price: Microfilm-$1.00 - Photostat-$4.00
This model consists of a compact medium power high frequency transmitter and power supply for marine installations. The frequency range of the equipment is 2000 to 22,140 kc and the power output is 150-200 watts with CW or MCW emission. A description of the equipment and the transmitter circuit is given; together with instructions for installation, service and transmitter adjustments; typical calibration, motor generator and motor starter data. Lists of major units, parts, manufacturers; also photographs and drawings are included.

PB 17425. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for radio transmitting equipment model TDQ, (Manufactured by RCA Victor Division, Radio Corp. of America, Camden, N. J.). (Navships 900, 474-IB IB-38239/38333) Nov 1944. 290 p. Price: Microfilm-$3.00 - Photostat-$19.00
This equipment provides voice transmission or MCW transmission at any frequency from 115 to 156 megacycles and is designed for shipboard installation. The instruction book is divided into the following sections: 1 - Description, 2 - Installation, 3 - Tuning operation procedure, and 4 - Service procedures and circuit theory: Parts lists, calibration curves, drawings, schematic diagrams and photographs are also included.

PB 17774. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book: Navy Model TCB-2 radio telegraph and telephone transmitting equipment (manufactured by Collins Radio Co., Cedar Rapids, Iowa) Nov. 1942. 157 p. Price: Microfilm-$2.00 - Photostat-$11.00
The model TCB-2 transmitting equipment is composed of the radio-transmitter, a handset, a remote control unit, and a desk set. The transmitter is capable of operating on any frequency within the range 1,500 kc to 12,000 kc. The nominal power output is 75 watts. CW, MCW and telephone type emission are available with this equipment. The autotune system is mechanically arranged in two units driven by a motor through a series of interconnecting shafts. Instruction is given in the installation, operation, adjustment and maintenance of the various parts. Parts lists, photographs, schematics and wiring diagrams are included.

PB 17787. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Navy model RAN-1 radio receiver. Instructions. (Manufactured by RCA Victor Division of Radio Corporation of America, Camden, N. J.) (IB-38106) Jan 1941. 48 p. Price: Microfilm-50¢ - Photostat-$4.00
This model is housed in a table-mounting cabinet provided with doors for access to tubes, crystal and tuning controls. The receiver employs a crystal-controlled superheterodyne circuit designed to operate at any fixed frequency between 60 and 76 megacycles. An additional range of from 30 to 42 megacycles may also be covered by using plug in coils. The various component parts are described, and instructions are given for installation, maintenance and operation. The instructions are accompanied by photographs, lists of parts, drawings, schematic wiring diagrams, and coil data.

PB 17789. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Preliminary instruction book for model RBL-1 radio receiving equipment. (Manufactured by National Company, Inc., Malden, Mass.) Mar 1942. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
The equipment described herein is suitable for the reception of radio telephone or radio telegraph signals by headphone methods. It operates from a 115 volt, 50-60 cycle a-c supply source. This model is a seven-tube, table mounting, tuned radio frequency receiver covering a continuous frequency range of from 15 to 600 kc in six working bands. Included are descriptions of the component parts; instructions for installation, operation, and servicing; schematic wiring diagrams, drawings; and lists of parts and manufacturers.

PB 17775. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Preliminary instruction book for Navy Model TBU-4 shore radio telegraph transmitting equipment (manufactured by Westinghouse Electric & Manufacturing Co.); and Spare parts catalog, dated Mar 19, 1945. (CF-363 & NavShips 900, 391-SP, Spare parts catalog) Apr 1942. 181 p. Price: Microfilm-$2.00 - Photostat-$13.00
This equipment covers the frequency range of 300 to 2,000 kilocycles and is primarily designed for CW and MCW telegraphy shore installation and operation. Telegraph keying speeds up to 100 words per minute may be utilized by means of the keying relay, and in addition, speeds up to 500 words per minute are available when the incorporated vacuum tube keying system is used. The equipment can be remotely controlled and keyed. The transmitter power (450 to 1000 watts) can be varied from full power to less than one-quarter power by means of a single control. Modulated CW transmission can be selected by means of a switch. The text comprises a detailed description, installation, operation, maintenance, list of major parts, parts lists, schematics, drawings, wiring diagrams, and calibration curves, and miscellaneous data.

PB 17989. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Preliminary instruction book for Navy models TCH-2 and TCU-2 radio transmitting equipments. (Manufactured by General Electric Company, Schenectady, N. Y.) (GEI - 17192) Sep 1943. 117 p. Price: Microfilm-$1.50 - Photostat-$8.00
Instructions are given on the theory of operation, operation, adjustments and maintenance of the two subject radio transmitting equipments. Model TCH-2 transmits-in the HF range of 2000 to 18,100 kc with a power output of 125 watts on

CW and 30 watts on MCW or voice model TCU-2 transmits in the range 300 to 2000 kc with an output of 125 watts on CW and 30 watts on MCW, no voice emission being provided. These sets are designed for both ship and shore radio stations. This report contains complete parts lists, tuning curves, outline, schematic, and wiring drawings of major components, and manufactures instructions on contactors, relays and copper oxide rectifier unit.

PB 17424. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Preliminary instruction book for Navy model TDE-3 radio transmitting equipment. (Manufactured by Farnsworth Television & Radio Corp. Fort Wayne, Ind.) Jun 1943. 134 p. Price: Microfilm-$1.50 - Photostat-$9.00
This equipment has a frequency range of 300 to 1500 kc, and 1600 to 18100 kc. Power output ratings are as follows: CW-125 watts, MCW-35 watts, and voice-30 watts. It is designed for operation on all types of naval surface vessels or in shore stations and is especially designed to facilitate rapid installation for widely varying applications. Included are detailed descriptions of the components parts; instructions for installation, operation and maintenance; lists of parts and manufacturers; information regarding vacuum tubes; drawings; schematic wiring diagrams; and tuning curves.

Electronics

German

PB 1703. MISCELLANEOUS German medical articles. 1943. 716 p. Price: Microfilm-$7.50 - Enlargement print-$48.00
This reel consists of periodical articles and catalogs describing the Siemens X-ray apparatus, including clinical application.
1. Pätzold, Johannes. Die hochfrequenztechnik in der medizin. (High frequency technique in medicine). Fortschritte der hochfrequenstechnik 2, 763 (1943). 68 p.
2. Röntgen-planigreph. (X-ray planigraph). n.d. 25 p.
3. Tiefenblende mit lichtwisier und einstellskalen. (Deep screen with light visors and focusing scales). n.d. 10 p.
4. Bestrahlungsanlagen für die methode Chaoul. (Illuminating directions for the Chaoul method). n.d. 8 p.
5. Tuto Röntgen anlagen für tiefen therapie. (Tuto X-ray directions for deep therapy). n.d. 23 p.
6. Elektromedizinische apparate. (Electromedical apparatus). n.d. 37 p.
7. Siemens-Pantix drehanodenröhren. (Siemens-Pantic rotating anode tube). n.d. 15 p.
8. Röntgen-reihenbildner nach Abreu-Holfelder mit zeiss-Ikonoptik. (X-ray sequence pictures according to Abreu-Holfelder with Zeiss-Ikon optical system). n.d. 4 p.
9. Vierventil-Rontgenapparate Heliophos und Polyphos für standard aufnahmetechnik. (Four valve Heliophos and Polyphos X-ray apparatus for standard technical exposure). n.d. 10 p.
10. Diagnostic X-ray tubes. n.d. 16 p.
11. Röntgeneinrichtungen für oberflächentherapie und für grenzstrahlentherapie. (X-ray installation for surface and border ray therapy). n.d. 16 p.
12. Monophos mit Tutomat-schaltung. (Monophos with Tutomat connection). n.d. 8 p.
13. Rontgen kamera. (X-ray camera). n.d. 2 p.
14. Ergophos der Zweiventil - Röntgendiagnostikapparat mit automatischer schaltung. (Ergophos of the two valve diagnostic X-ray apparatus with automatic connection). n.d. 9 p.
15. Leichtes feldröntgen-gerät, 25 ma, 75 kv mit Suchblende. (Light-weight X-ray apparatus 25 ma, 75 kv with viewing screen. n.d. 25 p.
Complete description of apparatus, assembly and packaging, including diagrams, is given.
16. Prufbescheinigung uber den strahlenschutz der Siemens-Röntgenleuchte. (Ray protection warranty of the Siemens X-ray apparatus). n.d. 20 p.
Consists of drawings.
17. Gebrauchs-anleitung, klein-Röntgen-gerät in einem Kasten. Prüfungsschein. (Guide to use of small X-ray apparatus in a box. Test certificate). 1942. 34 p.
Drawings included.
18. Patzöld, J. Ein hochfrequenzgerät zum aufsuchen metallischer fremdkörper. (A high frequency apparatus for locating foreign metallic bodies). Der Chirurg 13, Nr. 7,207 (1941). 5 p.
19. Küntscher, G. and Jaumann, A. Ein hochfrequenzverfahren zum affinden von metallfremdkorpern. (A high frequency procedure for locating foreign metal bodies). Zentralblatt für chirwigie. 1940, Nr. 50, 1. 7 p.
20. Was muss der chirwig beim gebrauch des Siemens-metallsuchers beachten? (What precautions must the surgeon observe in using the Siemens metal detector?). n.d. 17 p.
21. Gebrauchs-anleitung, Siemens-metallsucher. (Guide to use of Siemens metal detector). n.d. 12 p.
22. Siemens Konvulsator, das gerät zur electrokrampfbehandlung der psychosen. (Siemens Konvulsator, apparatus for electrical shock treatment of psychosis). n.d. 8 p.
23. Patzold, Johannes. Das gerat zur electrokramp ferasugung und seine physikalischen grundlagen. (Apparatus for production of electrical shock and its physical basis). Deutsche medizinische wockenshrift. 1940, Nr. 42,1157. 9 p.
24. Olbrich, Hermann. Die electrokrampftherapie. (Electrical shock therapy). n.d. 4 p.
25. Gebrauchs-anleitung, Siemens-Konvulsator. (Guide to use of the Siemens-Konvulsator. n.d. 13 p.
26. Diagrams showing installation and use of apparatus. August 1938 to August 1942. 226 p.
27. Additional diagrams. September 1942 - (not given). 87 p.

United States

PB 14043. BOCK, E. L. M 2903 shipborne antenna. (Harvard Univ Radio Res Lab Tech Memo 411-TM-140). Oct 1944. 22 p. Price: Microfilm-50¢ - Photostat-$2.00
M 2903 antenna was developed to provide a shipborne transmitting antenna for the frequency range 175 to 380 mc. For vertical polarization this dipole antenna provides a wide-angle beam in the horizontal plane and a relatively narrow pattern in the vertical plane. The measured field patterns are shown in Figures 1 through 7, and polar graphs in Figures 8 through 11. Photographs, curves and drawings are also included.

PB 14030. BUSS, ROBERT R. Random-pulsed triode cavity oscillators as jammers. (Harvard Univ., Radio Res Lab Tech Memo 411-TM-101) Apr 1944. 3 p.
Price: Microfilm - 50¢ - Photostat - $1.00
This short report finds that a random-pulsed triode cavity oscillator is a relatively inefficient and ineffective jamming source. Constant-rate pulsed operation is almost completely ineffective it was found. No appreciable increase in average power output or in upper frequency limit was obtainable from pulsed operation, and the size and weight of the modulator required for the necessary short, high-recurrence-rate pulses grew out of all porportion to the amount of power required for the oscillator.

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PB 16205. CHU, L. J. and FRANK, N. H. T-Junctions in rectangular wave guides: Part II Final formulas and curves. (MIT Radiation Lab Rept 43-7) Jul 1942. 17 p. Price: Microfilm-50¢ - Photostat-$2.00
The results of the theoretical calculations of Part I of this report (see PB 16202) on the behavior of T-junctions in rectangular wave guides are presented here in a form suitable for practical applications. Numerical values are given for ranges of the parameters actually employed. Graphs and diagrams are included.

MIT 179

PB 16202. FRANK, N. H. and CHU, L. J. T-Junctions in rectangular wave guides: Part I, Theory. (MIT Radiation Lab Rept 43-6) Jul 1942. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
The theory of the propagation of electromagnetic waves in wave guide systems containing a T-junction is presented. The dimensions of the guides are so taken that only the lowest TE mode can propagate and the plane of the T is parallel to the electric field in the guides. The results are reduced to a simple form suitable for engineering applications. Numerical applications to specific cases are contained in PB 16205, which is Part II of this report.

PB 13281. GARRISON, J. B. Qualitative analysis of hysteresis in reflex oscillators. February 4, 1946. (Mass. Institute of Technology. Radiation Laboratory Rept 650). 1946. 42 p. Price: Microfilm - 50¢ - Photostat - $2.00
Hysteresis in reflex oscillators is of two general types, thermal and electronic. This report treats only the electronic sources of hysteresis. The behavior of hysteresis in the 2K-33 (a K-band reflex oscillator) is explained by a combination of phase shift (due to r-f voltage) in single transit current, and multiple transits. Phase shift in single transit current produces modes which show asymmetry when power is plotted as a function of reflector voltage but which are symmetrical when power is plotted against frequency. In extreme cases, hysteresis accompanies these asymmetrical modes. Hysteresis caused by multiple transits shows a marked preference for the high frequency end of the mode due to the effects of multiple bunching. Multiple transits may also cause as many as five or six power and frequency discontinuities on each end of the mode. Fourteen pages of charts and diagrams are appended.

PB 14148. HOK, G. Preliminary test results on Westinghouse 10 kw magnetron. (Harvard Univ. Radio Res Lab Rept 411-70) Aug 1944 53 p. Price: Microfilm - $1.00 - Photostat - $4.00
Tests are described on samples of a 10 kw. magnetron under development by Dr. D. H. Sloan at Westinghouse Research Laboratories. This memorandum gives drawings and schematics of the equipment used and describes the procedure followed and the characteristics obtained for the tubes tested. Some of the tube constants are measured by cold test. The data for the characteristic curves for c-w operation are obtained by feeding the output of the tube into a calorimeter load and are plotted in Rieke diagrams and performance charts. A theory of magnetron modulation is outlined and tests with wide-band noise modulation described. The spectra plotted for the r-f output are all narrower than the "cold" bandwidth of the r-f system and vary very much with the modulating voltage, the wave length, and the c-w operating point of the magnetron. Sixty-cycle modulation tests are reported, the results of which suggest that frequency modulation played an ingignificant part in producing the wide-band spectrum in the corresponding noise-modulation tests.

PB 14034. MAYBERRY, L. A. B-2200 transmitter (DINA) (AN/APT-1). (Harvard Univ. Radio Res Lab Tech Memo 411-TM-110). May 1944. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
This set is an airborne transmitter for jamming enemy radar systems operating in the frequency range from 95 to 220 megacycles. A brief description of the equipment and its operation is given and a block diagram of its component parts is added.

PB 14119. OVERACKER, H. E., and PETTIT, J. M. Preliminary description and specifications of D1800 recorder for search receivers. (Harvard Univ. Radio Res Lab Tech Memo 411-TM-50) Nov 1943. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This report gives a general description of a recorder designed for use with the AN/APR-1 receiver. This instrument provides a written record of radar signals received. The radar operator is thus enabled to monitor his sets by watching the paper tape and need listen to the earphones only when a new signal appears on the tape. An installation drawing is included.

PB 14216. PAN, W. Y. I-F circuit modifications of SCR-268. (Harvard Univ Radio Res Lab Rept 411-164) Mar 1945. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
It has been noted that radar receiver gain, as indicated by relative noise amplitude, sometimes suffers a serious loss during a short interval of time (range) immediately following the transmitter pulse. This report discusses observations of this effect on the SCR-268 radar and describes a simple circuit change by which the trouble can be eliminated on this specific system. The general recommendation is made that self-bias be used in the i-f stages in order to avoid common coupling between low- and high-level i-f stages resulting from the use of fixed bias. Report includes photographs, schematics, and a graph.

PB 12103. POUND, R. V. Microwave frequency discriminator. August 4, 1945. (Mass Institute of Technology Radiation Laboratory Rept 662) 1945. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
A microwave circuit using "Magic Tees" giving output voltage vs. frequency characteristics equivalent to the ordinary low frequency discriminator circuits is described. A discussion of the principles of the "Magic Tee" is given and a set of transformation equations useful for analysing circuits using the Magic Tee is derived. From these equations, formulae describing the microwave discriminator are found and curves plotted from these formulae are given.

PB 14171. SCHEUCH, L. R. and others. Modification of SCR-648 to simulate German Wurzburgs. (Harvard Univ Radio Res Lab Rept 411-110) Oct 1944. 36 p. Price: Microfilm-50¢ - Photostat-$3.00
This report describes the conversion of an SCR-648 to simulate partially both the Small and Giant German Wurzburgs. The compromise lies in the fact that the pulse repetition rates of both systems have been made available, while the antenna reflector diameter lies between those of the two German systems. Report contains photographs, schematics, drawings, and graphs.

PB 14157. STEPHENSON, J. G. and HENKEL, R. L. The G.E. ZP-522 triode as a CW oscillator and amplifier in coaxial line circuits. (Harvard Univ Radio Res Lab Rept 411-83) Mar 1944. 17 p. Price: Microfilm - 50¢ - Photostat - $2.00
Operation of ZP-522 tubes in single tube oscillator, push-pull oscillator, and power amplifier circuits was tested and is described. The ZP-522 is a lighthouse tube with a hollow nickel anode which can be either air- or liquid-cooled. In the single tube oscillator the range 350 to 1500 Mc or higher can be covered and with modifications wide-band plate modulation can be applied. Drawings of the test circuits, and graphs and tables of test results are included.

PB 17486. U. S. NAVY DEPARTMENT. Instruction book for Navy Models DAB and DAB-1 radio direction finder equipment (manufactured by Collins Radio Co., Cedar Rapids, Iowa) dated 16 Feb 1944; Addendum: Instructions for installation and operation of Collins Type 115K-3 audio filter unit with Navy Model DAB series equipment, dated 29 June 1944; and Manual of supplementary instructions for Model DAB series of direction finders, prepared by R.O. Swartz for the Naval Research Laboratory, dated 15 July 1944. Feb 1942. Total paging: 211 p. Total price: Microfilm-$2.50 - Photostat-$15.00
This instruction book and its supplements cover the installation, adjustment, operation, and maintenance of the Navy Model DAB radio direction finding equipment suitable for use at fixed land stations to indicate the direction of arrival of the normally polarized component of radio waves of any frequency within the range 2000 kc. to 18,000 kc. Diagrams, drawings, tables, and photographs are included.

PB 17864. U. S. NAVY DEPARTMENT. Preliminary instructions for Models QCQ-1 and QCR-1 echo ranging equipments and Models QCS and QCT echo ranging-listening equipments. (Manufactured by Submarine Signal Co., Boston, Mass.) (Sub. Sig. Spec 8484A) Feb 1942. 78 p. Price: Microfilm-$1.00 - Photostat-$6.00
The above models can be used to determine the range and bearing of visible or invisible vessels, buoys, or other objects in the surrounding water. These equipments can also be used for underwater telegraphic communication between vessels similarly equipped. In addition, Models QCS and QCT can be used for listening to and determining the bearing of high frequency sound generated by the propellers or other

moving parts of a distant vessel. The contents include descriptions of the echo ranging and listening units, the retracting gear, and the power supply unit; instructions for installation, maintenance and operation of the various parts; and lists of major and spare parts. Drawings and schematic wiring diagrams are also included.

PB 17747. U. S. NAVY DEPARTMENT. BUREAU OF ENGINEERING. Installation, operation and maintenance instructions for Model QCA echo ranging equipment (manufactured by Submarine Signal Co., Boston, Mass.) (Sub Sig Spec 8443) Dec 1937. 204 p. Price: Microfilm-$2.50 - Photostat-$14.00
This book covers the changes necessary to modify and improve the Model QC-1 echo ranging system furnished under Contract Nos. 36360. The equipment may also be used for underwater telegraphic communication and as a listening device. After modification the equipment is designated as Model QCA. The detailed descriptive material in this volume includes only those units of new and improved design as part of Model QCA, including the indicator-amplifier-control unit, the keying relay assembly, the training control power supply, local control unit, loud speaker and head telephone. Included also are principles of operation; instructions for installation, operation maintenance; lists of parts, tabular data; wiring diagrams, and drawings.

PB 17434. U. S. NAVY DEPARTMENT. BUREAU OF ENGINEERING. Model DH automatic static recorder, frequency range 10 to 30 kilocycles. Instructions. (Manufactured by Westinghouse Electric & Manufacturing Co., Chicopee Falls, Mass.) (IB 5550) Mar 1928. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
The purpose of this equipment (made under a Navy contract dated March 1928) is to make a continuous automatic record of static disturbances, indicating the direction from which the static disturbance originates, the time at which the signal was received and the intensity of the signal. The recorded intensities may be converted to standard units, micro-volts per meter. Photographs, schematic diagrams, and parts list are included.

PB 17433. U. S. NAVY DEPARTMENT. BUREAU OF ENGINEERING. Model DJ radio direction finder, frequency range - 1000 to 4525 kilocycles. Instruction book. (Manufactured by Westinghouse Electric & Manufacturing Co., Chicopee Falls, Mass.) (I.B. 5556) Apr 1930. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
The model DJ direction finder is of the Bellini-Tosi or fixed loop type, using a goniometer to determine the bearings. The equipment operates on frequencies from 1000 kc to 4525 kc. It was designed to be mounted in the upper structure of a ship. This manual contains description, installation and operation instructions, and parts list. Photographs and diagrams are included.

PB 17876. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Handbook of maintenance instructions for radar set SPT-3 or radio transmitting equipment RC-183-A and Supplement 1. (Newships 900,280-IB) Feb 1944. 47 p. Price: Microfilm-50¢ - Photostat-$4.00
This report consists of an instruction book for the AN/APT -3 and RC-183-A airborne barrage jamming radar transmitters, with a supplement providing information for the conversion of the equipment to the AN/SPT-3 for shipboard use. This supplement together with the AN/APT-3 instruction book provides full information on the AN/SPT-3 equipment. The equipment has a frequency range of 85 to 135 megacycles, a power output of a 9 to 12 watts and is noise modulated. Drawings and diagrams are included.

PB 17892. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Installation, operating and maintenance instructions for Model MJ-6 echo sounding equipment. (Manufactured by Bludworth, Inc. New York, N.Y.) (Bludworth B-54) Mar 1942. 58 p. Price: Microfilm - $1.00 - Photostat - $4.00
The model MJ-6 echo sounding equipment furnishes a simple and positive indication of water depths beneath the keel of a ship, thereby aiding in its navigation and providing a measure of safety by forewarning of approaching shoals. Operation is entirely automatic. Depths of water are recorded on a circular scale by means of flashes of red light. The apparatus has two ranges - one of 0 to 200 fathoms for ordinary navigational use, and another of 0 to 200 feet for use during such times as more precise measurements of shoal water are required. Manual contains description, operating and maintenance instructions, service notes, working drawings, installation instructions and tables. A supplement contains a spare parts list and additional drawings.

PB 17746. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Installation, operation and maintenance instructions for Model QCP Herald equipment (manufactured by RCA, Victor Div., Camden, N. J.) (IB-38164) 1942. 213 p. Price: Microfilm-$2.50 - Photostat-$15.00
This echo ranging and listening device is intended to be installed at the entrance to harbors to detect the presence of submerged objects or the noise of propellers. The sound wave projector is located in a water station unit located on the sea bottom, while the signal producing, signal receiving and indicating equipment and a means of rotating the projector is located on shore and connected with the projector by submarine cable. Descriptions of the various parts of the equipment and their operation; instructions for installation, operation, and maintenance; diagrams; photographs; and drawings are included.

PB 17868. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Installation, operation and maintenance instructions for Models QCJ-5, QCJ-6, QCL-4 and QCL-5 echo-ranging equipments and Models QCM-3 and QCC-2 echo ranging-listening equipments. (Manufactured by Submarine Signal Co., Boston, Mass.). (NavShips 900,522-IB) Jul 1943. 152 p. Price: Microfilm-$2.00 - Photostat-$11.00
The echo ranging equipments described in this book are devices for obtaining the distance and direction of a visible or invisible vessel, buoy, reef, etc, by producing a signal in the sea water and noting the time required for the echo to return and the direction from which the echo returns. The equipment may also be used for telegraphic communication between vessels similarly equipped. The handbook describes the equipment, discusses principles of operations and provides instructions for installing, operating and maintaining the equipment. There is a list of major parts and spare parts. Photographs, tables, diagrams, and schematics supplement the text.

PB 17874. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book, model DAE and Model DAE-1 radio direction finder equipment. (Manufactured by Radiomarine Corporation of America, 75 Varick St., N. Y.). Jul 1943. 80 p. Price: Microfilm-50¢ - Photostat-$4.00
The model DAE radio direction finder equipment consists of the following major units: Type CBM-46153 radio receiver (240 to 2000 KC); type CBM-69074 loop assembly; two complete sets of vacuum tubes; and a set of spare parts. The basic power supply is 115 volts, 60 cycles, single phase, A. C. Construction, installation and operation are described. Appendix contains tables, drawings, photographs, and schematic.

PB 17870. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for Herald equipment Navy Model QBC-1 (Manufactured by Wallace & Tiernan Products, Inc. Belleville, N. J.) (Nav Ships 900,313-IB) Aug 1944. 325 325 p. Price: Microfilm-$3.50 - Photostat-$22.00
These instructions cover the installation, operation, and maintenance of the model QBC-1 Herald equipment for locating both underwater and surface craft by means of echo ranging and listening. It consists of a water station unit located on the sea bottom and shore station equipment. The water station unit contains a rochelle salt projection which is used for listening as well as echo ranging. Schematics, drawings, parts lists and photographs are included.

PB 17875. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for model DAG portable radio direction finder equipment. (Manufactured by Airplane and Marine Instruments, Inc., Clearfield, Pennsylvania). Jan 1942. 44 p. Price: Microfilm-50¢ - Photostat-$3.00
This book contains operating and maintenance instructions for the model DAG portable radio direction finder equipment. This is a high frequency portable direction finder operating in the frequency range from 1.6 to 18.2 mc, suitable for locating radio transmitters of unknown location. It may also be used to determine the location of receivers with respect to transmitters of known location by triangulation and as a communications receiver for both CW and amplitude modulated signals. Tables, photographs and diagrams are included. For instruction book on later models of this equipment, see PB 17873.

PB 17888. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for model DAK-2 intermediate frequency radio direction finder equipment. (Manufactured by Federal Telephone and Radio Corporation, Newark, N.J.) (Navships 900,277-IB) Jun 1943. 173 p. Price: Microfilm - $2.00 - Photostat - $12.00
This is a new type direction finder employing a fixed crossed loop and a sense antenna for use on vessels. It covers the frequency range between 250 and 1500 kc. The equipment is designed for CW, MCW and ICW reception. The book contains sections on the following subjects: Description, fundamentals of direction finding, installation notes and drawings, calibration, location of faults, tube locations, list of major components, parts list by symbol designation, parts list by Navy type designation, and index of manufacturers. Diagrams and photographs are included.

PB 17852. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for model QCW, QCX, QCY, QCZ Herald equipments. (NAVSHIPS 900,309 IB-38210) Feb 1945. 193 p. Price: Microfilm-$2.00 - Photostat-$13.00
These equipments are intended for installation at the entrance to harbors and bays, and provide a means of searching a sector of the waters for submerged objects. This is accomplished by means of super-sonic sound waves. The equipment is designed to operate from a 115 volt, 60 cycle, single phase source of A. C. power and requires approximately 1265 watts for its operation. The book has sections on the following subjects: Description, installation, operation, maintenance instructions; parts list; and coil impregnation data. Diagrams and photographs are included.

PB 17893. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for Navy Model DAB-3 radio direction finder equipment. (Manufactured by Collins Radio Co., Cedar Rapids, Ia.) 1942. 160 p. Price: Microfilm-$2.00 - Photostat-$12.00
This equipment is designed to indicate the direction of arrival of the normally polarized component of radio waves at any frequency within the range of the equipment (2000 to 18,100 kc). It has a rejection ratio of 100 to 1 at a frequency 10 kc off resonance. Instruction book contains sections on circuit function, installation, adjustments, operations and maintenance, supplementary data, parts list. Photographs, drawings, schematic and wiring diagrams are included.

PB 17873. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for navy models DAG-1 & DAG-2 portable radio direction finder equipment. (Manufactured by Airplane & Marine Instruments, Inc., Clearfield, Pa.) Jun 1943. 49 p. Price: Microfilm-50¢ - Photostats-$4.00
This manual contains a detailed description of those portable radio direction finders, together with operating and maintenance instructions. The Modal DAG is a high frequency portable direction finder suitable for locating radio transmitters of unknown location. It may also be used to determine the location of receivers with respect to transmitters of known location by triangulation, and as a communications receiver for both CW and amplitude modulated signals. It is normally powered by self-contained batteries. The frequency range of 1.6 mc to 18.2 mc is covered. Supplementary data consisting of tables listing major units, parts and spare parts, color codes, etc., and photographs and diagrams are included.

PB 17883. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Models DQ-5 and DQ-6 radio direction finder equipment. (Manufactured by RCA Victor Division, Camden, New Jersey) (IB-38115) Apr 1941. 79 p. Price: Microfilm - $1.00 - Photostat - $6.00
This publication describes above equipment and includes instructions for installation, operation and servicing. The equipment is designed to operate from 115 volt, 60 cycle, single phase service. The receiver is of the superheterodyne type and covers the frequency range of 100 to 1500 kc. When properly installed and calibrated the equipment will accurately indicate the direction of propagation of pure or modulated continuous wave signals, either keyed or unkeyed, at any frequency within this band. Photographs, drawings, and schematic wiring diagrams are included.

PB 17866. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Preliminary instruction book for Navy Model QCF-1 herald equipment. (Manufactured by Submarine Signal Co., Boston, Mass.) and addenda. (Sub. Sig. Spec. 8488A) 193 p. Price: Microfilm-$2.00 - Photostat-$13.00
This volume contains description, installation, operating and maintenance instructions for the Model QCF-1 Herald equipment. This equipment is designed to determine the range and azimuth of surface and under-surface vessels by sweeping a supersonic beam in azimuth and observing the reflected wave . The equipment consists of three main parts: (a) A sea station, consisting of an underwater mounting of a magnetostriction projector and auxiliary apparatus for training in azimuth, mounted on a heavy tripod, and planted in water up to about 50 fathoms deep; (b) a shore station which consists of the control apparatus and power supply for the sea station; and (c) two special submarine cables connecting the sea and shore stations. Parts lists, tables, photographs and diagrams are included.

PB 17863. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Preliminary instruction book for Navy Model QCQ-2 magnetostriction ranging/listening equipment. (Manufactured by RCA Victor Division, Radio Corp. of America Camden, N. J.) (IB-38196) Aug. 1942. 126 p. Price: Microfilm-$1.50 - Photostat-$9.00
The purpose of this model when installed on board ship is to provide a means for determining the range and bearing of surface and underwater vessels, reefs, buoys, etc. in the surrounding water. The magnetostrictive properties of nickel are employed in the projector to transform electrical energy into acoustical energy and vice versa. This manual contains descriptions of the equipment, and instructions for its installation, operation and maintenance; also tables, schematic circuit diagrams, photographs, and drawings.

PB 17865. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Preliminary instruction book for Navy Models QCS-1 and QCT-1 echo ranging and listening. (Manufactured by Submarine Signal Co., Boston 9, Mass.). (Sub. Sig. Spec. 8491A) June 1942. 172 p. Price: Microfilm-$2.00 - Photostat-$12.00
The echo ranging equipments described in this book are devices for obtaining the distance and direction of a visible or invisible vessel, buoy, reef, etc., by producing a signal in the sea water and noting the time required for the echo to return, and the direction from which it returns. The equipment may also be used for telegraphic communication between vessels similarly equipped. Description of the apparatus; principles of operation; instructions for installation, operation and maintenance; lists of major and spare parts; tabular data; illustrations; and schematic wiring diagrams are included.

PB 17737. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Preliminary instruction book for true bearing indication kit, a part of Navy Model QHE-3b, echo ranging-listening equipment. (Manufactured by Submarine Signal Co., Boston, Mass.) and Addenda A,B,C, & D. (Sub. Sig. Spec. 84111A) 1944. 37 p. Price: Microfilm-50¢ - Photostat-$2.00
The material covered by this manual provides a true bearing bridge repeater unit for the navy model QHE-3a echo ranging listening equipment. With the addition of the bridge repeater unit, and modification material SK-6152, to the original QHE-3a equipment. The operator is provided with a continuous remote indication of the true bearing as well as the relative bearing of the under water sound beam. Manual gives instruction on the operation, installation and maintenance of the unit; tables, schematic and wiring diagrams are included.

PB 14299. U. S. WAR & NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for Model AN/APG-4 aircraft radar equipment and auxiliary equipment. (CO-AN 08-20-13) May 1945. 217 p. Price: Microfilm-$2.50 - Photostat-$15.00
Model AN/APG-4 is an automatic aircraft radar bomb release devise which calculates the proper instant for release of a bomb in order to hit in the close vicinity of a marine surface target. The equipment is designed to operate at pre-selected altitudes of 50,75,100, 150, 200, and 300 feet when using altitude compensation switch SA-9A/APG-4, or at any altitude from 40 to 400 feet when using altitude compensation unit SA-28/APG. The equipment automatically compensates for aircraft speeds between 100 and 350 knots. This handbook contains the following sections: I - General description; II - Installation and adjustment; III - Operation; IV - Theory of operation; V - Maintenance; VI -Supplementary data; VII - Table of replaceable parts; VIII - Diagrams; IX - Index. There are numerous illustrations, tables, and schematic drawings. (Four pages are missing from Section I of this copy.)

PB 16628. U. S. WAR DEPARTMENT. SQUIER SIGNAL LABORATORY. FORT MONMOUTH, N.J. Quartz crystal units: Supplement 1, issue 2. Jan 1946. 21 p. Price: Microfilm - 50¢ - $1.00
This report contains revised publications and new material to be inserted in the Standards Handbook of SCEL, together with a list of superseded publications. The material is on quartz crystal units for use in Army Ground Forces signal equipments.

PB 16200. URQUHART, K. J. Instruction manual for service modulator model 9. (MIT Radiation Lab Rept M-131) Sept 1943. 38 p. Price: Microfilm-50¢ - Photostat-$3.00
The experimental service modulator model 9 consists of two units: (1) the modulator proper; and (2) a 27,000 volt, 100 milliampere DC rectifier for plate supply of the output tubes. This report discusses operating procedures for the modulator with sufficient instructions for operation of the rectifier; circuit diagrams and installation procedure for the rectifier unit are discussed in General Electric Company Instruction Book GEI-17227. The modulators are vacuum tube generators of high power negative pulses of approximately 24 KV and 41 amperes. It is synchronously operated from an external positive trigger. Report contains parts list, photographs, schematic diagrams and outline drawings.

PB 14159. VAN VLECK, J. H. and MIDDLETON, DAVID. Theory of the visual vs. aural or meter reception of radar signals in the presence of noise. (Harvard Univ Radio Res Lab Rept 411-86) May 1944. 101 p. Price: Microfilm-$1.50-Photostat-$7.00
This report is divided into two sections; a descriptive survey of the subject and a mathematical analysis. It examines theoretically the relative sensitivity of the detection of signal pulses in the presence of noise, by visual detection (the A-scope), by aural detection, in which one listens to the fundamental or a low harmonic of the PRF, and by a meter. The metering scheme may be either aperiodic, where the rectified current is fed directly to a meter with a long time constant, or periodic, where the rectified current is sent through an audio filter tuned to the PRF, given a supplementary rectification, and then passed through the meter. The dependence of the sensivities of the different methods on various relevant parameters is studied in some detail. These parameters include the width and the shape of the IF response, the pulse length, the PRF and in aural or meter reception the duration of the gate, the width of the audio filter, or the time constant of the meter. Many graphs are included in the report.

PB 14187. WEINSTOCK, ROBERT. Estimate of square sheet echo cross-section; theoretical evaluation of broadside echoes from circular cylinder for perpendicular polarization. (Harvard Univ. Radio Research Lab. Rept 411-125). 1944. 13 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report concerns the possibility of using square sheets for window at short wave-lengths. Rough theoretical estimates indicate that the maximum response from a square would approximately equal that from a single half-wave dipole. From the point of view of weight-to-response ratio, therefore, the use of squares is not satisfactory. Also included is a theoretical analysis of the broadside scattering by circular cylinders, for the case in which the electric vector is perpendicular to the cylinder axis. A plot of the echo cross-section as a function of wave length is appended.

PB 15601. WELLS, H. W. and others. Correlation of direction-finder errors with ionospheric conditions, College, Alaska, August 16, 1943, to June 30, 1944. (OSRD Rept 4225) Sep 1944. 16 p. Price: Microfilm-50¢ - Photostat-$2.00

PB 14529. WESCH, LUDWIG. Phosphors, centimeter waves, etc., translated by McCarthy, Townsend, and Mertz: (Report C-20A). 1945. 23 p. Price: Microfilm - 50¢ - Photostat - $2.00
The author of this report, professor, and director of the German Institute for International Postal and Communication Service and the Electro-Optical Institute, declares himself in the position to undertake at once, together with his former staff of highly skilled co-workers, the development of the following projects for the Allied Forces or Administration: 1. Phosphors (luminescent substance for image converters and television. 2. Problem of range finding for moving targets. 3. Cm triodes for receiving purposes to supplant magnetrons and detectors. 4. Bolometer multiple cell panels with capacitive switch. 5. General projects in the field of infra-red rays. 6. Further development of absorbers for centimeter waves in the field of hollow conductors and coaxial cables. 7. Publication of his earlier scientific papers and those of his co-workers. Items (1) to (6) are developed in some detail indicating the direction of investigation in the respective fields and the point which they had reached when interrupted by U. S. occupation. This statement was made July 8, 1945, at Heidelberg.

PB 14393. WHIPPLE, F. L. and TYLER, A. W. Instruction book for the type A-4 dispenser (GII51) disposable. (Harvard Univ Radio Res Lab Rept 411-IB-73) Aug 1943. 24 p. Price: Microfilm-50¢ - Photostat-$2.00
This device is designed to carry and dispense chaff and rope from a fighter aircraft. The installation is easily made on the standard bomb rack from which it can be jettisoned if necessary. Ejection of the chaff or rope packages is controlled from the aircraft by means of a control switch mounted in the plane. Operation of the control switch energizes a motor-driven unit which strips the packages from the double tapes on which they are mounted and causes them to be blown through a chute in the tail of the dispenser. Photographs and drawings are included.

PB 13972. WHITBY, O. W. Comparison of top and bottom mounted AN/APA-24 antenna on Ferret 12. (Harvard University. Radio Research Laboratory. Test Rept. 411-TR-40). 1944. 30 p. Price: Microfilm-50¢ - Photostat-$2.00
Poor results have been reported with the AN/APA-24 direction finding antenna mounted on the top of a B-24-J just above the waist windows. This report describes tests conducted specifically with the object of discovering a location for the antenna which would yield satisfactory results for Ferrets 12 and 13. Due to the strict limitations placed on the time available for the tests by the fact that the planes were urgently needed in the theater, it was decided to seek merely any satisfactory solution to the problem. This barred the making of sufficient tests to fully compare the performance of the antenna at all possible mounting locations on the plane. After getting D. F. error data for the top mount position with and without the plane's communication antennas in place, a rotatable horizontal dipole that protruded below the underside of the aircraft was installed with its vertical supporting shaft sticking up into the RCM compartment. This location for the antenna gave such vastly superior results to those obtained with the antenna mounted on top that it was decided to consider this a solution to the problem as far as Ferrets 12 and 13 are concerned. Photographs, tables and graphs are included.

PB 15209. WING, A. K. JR. and others. Development of two 1 KW CW tunable magnetrons. (OSRD Division of Radio Coordination. Report 1430-1). 1945. 53 p. Price: Microfilm-$1.00 - Photostat-$4.00
This report describes the development of two 1 KW CW tunable magnetrons for operation in the L band. Sufficient progress was made on the type ZP-615A plunger type C ring to warrant further development. Tests indicate the electrical merit of the design of the ZP-616, but considerable mechanical work is still required. The Federal Telephone and Radio Corporation developed the mechanical features of the tube leading to a manufacturable design and the construction of a limited number of such final design tubes.

PB 16512. WINSTON, C. B. Filters, radio (radio frequency) Air Corps specification No. 32331, submitted by Eclipse Aviation Corporation. 24 December 1942. (Army Air Forces. Engineering Division. ENG-M-54-656-543F). 1942. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Three types of filters of 50, 100 and 200 amperes current, rating were tested according to specification No. 32331 and were rejected for failure to meet the attenuation requirements as shown in the appended curve. They were overweight and failed under vibration testing.

PB 16513. WINSTON, C. B. Radio noise investigation on P-40 E and P-40 K. 23 Dec. 1942. (Army Air Forces. Engineering Division. ENG-M-54-656-543). 1942. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Radio noise research on the ignition and electrical system of P40E airplanes at Orlando Air Force Tactical Training Center. Noise was caused by loose connections on the ignition harness, particularly on magneto ground leads and booster coil shielding and defective bonding of the ignition system, which was conducted throughout the electrical system and picked up by the highly sensitive 522 A high frequency radio receiver. Corrective measures and modifications as described in Appendix 1.

PB 16605. WINSTON, C. B. Radio noise tests on aircraft and accessory electrical equipment. (Army Air Forces. Engineering Division. ENG-54-656-543E). 1943. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Study of radio noise problem as related to aircraft and accessory electrical equipment and corrective methods for its elimination. Proper planning of the radio and electrical installations in the airplane can reduce or eliminate radio noise. Care in bonding of the ignition harness, engines and cowling eliminates noisy reception. Appendix 1 describes methods of installation that are satisfactory in suppressing radio noise.

PB 14420. WOODRUFF, J. H. and O'BRIEN, R. S. Instruction book for L-901 replacement video amplifier for SCR-717B radar. (Harvard Univ Radio Res Lab Rept 411-12-15) Dec 1944. 20 p. Price: Microfilm-50¢ - Photostat-$1.00
The L-901 replacement video amplifier is designed for use in the SCR-717B radar as an anti-jamming and anti-sea clutter device. Circuit changes accomplished by the installation of L-901 make the SCR-717B system at least 15 db less vulnerable to all types of electronic jamming. This is demonstrated in the handbook by photographs. Also included are schematics, a graph, and a parts list.

PB 14101. WOODRUFF, J. H. Suggested anti-jam video amplifiers for SCR-717-B. (Harvard University. Radio Research Lab. Technical Memo 411-TM-33). Jan 1944. Price: Microfilm-50¢ - Photostat-$1.00
This report describes two new video amplifiers which have been designed to make the SCR-717-B radar equipment less susceptible to jamming. An optional shor time-constant coupling circuit, and a pentode rather than triode limiter, have both been incorporated into the circuits.

PB 14168. WOODS, J. P. and PETRICH, R. O. Wide band UHF amplifier (D1410). (Harvard Univ Radio Res Lab Rept 411-102) Sept 1944. 17 p. Price: Microfilm-50¢ - Photostat-$2.00
The above airborne equipment was developed to be used as a pulse repeater in conjunction with a suitable modulator for the confusion of radar controlled flak. The unit consists of a five-stage ultra-high-frequency amplifier tunable over the range between 500 and 600 Mc. This report contains a general description of the unit as well as an analysis of its design. The report is illustrated with photographs, schematics, and a frequency response curve of the amplifier.

PB 14344. YOUNG, L. G., and DALE, G. V. Barrage jammer. (NDRC Div 15, Rept, 940-3.) 1943. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes a barrage jammer which was built at Deal with the primary purpose of acquainting the personnel at Deal with jamming problems and technique. Built of ready-made parts of other available transmitting equipment, it had a mid-band frequency of 21 mc. Its frequency modulation was adjustable from zero to ± 1 mc either side of the mid-band. Power output from 100 to 200 watts. The principal component of the noise source was a 2050 gas tube. The equipment is reported to have produced interference which was highly effective for jamming of reception of a carrier which is amplitude modulator by speech.

PB 14343. YOUNG, L. G. High-power barrage jammer. (NDRC Div 15, Rept 940-2) 1943. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
This document records the work which has been done in connection with electro mechanically modulated jammers. Reference is made to the British "Jostle" and its shortcomings, some of which have been overcome in an improved type by substituting the British rotating condenser plates by a condenser one plate of which is formed by a loudspeaker diaphragm actuated by noise currents at audio frequencies through an attached voice coil. A number of experiments with jammers using this combination a part of their circuits is discussed.

PB 14155. YOUNGBLOOD, J. F. Synthetic giant Wurzburg (antenna modification). (Harvard Univ Radio Research Lab. Rept 411-81A) 1944. 9 p. Price: Microfilm - 50¢ - Photostat -$1.00
This report describes the modifications made on the antenna structure of the Synthetic Giant Wurzburg which allowed it to be elevated through the full 90 degrees above the horizontal. Changes made on the counter-weight are also described. Three photographs are included.

Generators, Motors, Transmission, Distribution and Allied Equipment

PB 13808. HERMANN, JOHN A. Secondary electrical distribution systems and equipment manufacture. (FIAT Final Report 503). 1945. 25 p. Price: Microfilm-50¢ - Photostat-$2.00
The report is based on the study of the German regulatory body setting minimum standards for manufacture and installation of equipment, interviews with engineers and observation in a large number of manufacturing plants, and installation methods pertaining to secondary electrical distribution. The VDE (German Electro-technical Association), general practice in distribution systems and equipment, bulkhead cable seal for marine application, manufacture of secondary electrical distribution equipment including ceramic products, ardorit, steatite and fine clay, current carrying capacity of bus bars, and design and fabrication of circuit breakers are described. Generally German methods of distributing electrical energy in industrial plants are old-fashioned by U. S. standards.

PB 13759. U. S. WAR DEPARTMENT. ENGINEER BOARD. Evaluation report, German portable skid-mounted air compressor. (Rep 3002). Nov 1945. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
The compressor is a 2-stage, rotary, sliding vane type in which the compressed air is cooled between the first and second stages by means of an inter-stage air cooler. The unit has a capacity of 50 cfm at 90 psi gage pressure at 2850 rpm, and weighs 525 pounds. The advantage over comparable American equipment is that it is approximately 200 pounds lighter and the engine and compressor units can be readily separated for shipment. Nine photographs.

Miscellaneous

German

PB 13865. U. S. WAR DEPARTMENT. ENGINEER BOARD. Engineer Board Letter report, Lamp, miners, explosion-proof, hand, 220 volt, electric, Germn. (Rep. 2757). Jun 21, 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Report on a captured German explosion-proof miners' lamp. It is an inclosed type extension light consisting of an European standard bulb and socket mounted in an aluminum cylinder having a tightly sealed glass lens at one end and a base and bakelite handle at the other end. The aluminum cylinder screws into the base and is held in a locked position by a catch operated by a special key. It has no unusual features not used in American equipment. Two photographs.

PB 13857. U. S. WAR DEPARTMENT. ENGINEER BOARD. Engineer Board Letter report, Searchlight, 60 cm. fixed type, Serial No. 3866, German; and transformer, small, 55 volt, Serial No. 14665, German. (Reg 2742 and 2743). Jun 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Report describing and evaluating a captured German searchlight and transformer. It is apparently a revolving beacon for use in directing airplanes at airports. The searchlight consists of a 24 inch diameter drum with silvered glass parabolic reflector, incandescent lamp, and plate glass front door containing eight longitudinal sections of glass. The transformer has a dry type air cooled winding mounted in a sheet steel container 16 by 15 by 8 inches. The secondary voltage is rated at 55 volts and the primary voltage can be any voltage from 198 to 250 volts. One photograph.

Italian

PB 15430. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS ENGINEER BOARD. Letter report, Searchlight, 1200 mm Italian, and associated equipment, Reg. Nos. 2-7 inclusive. Feb 1945. 15 p. Price: Microfilm-50¢ - Photostat-$2.00
An analysis of Italian 1200 millimeter (47.2 inches) searchlight equipment, consisting of two portable searchlights, two control stations, extended hand control, and control and power cable reels with cable. Photometric tests showed that the maximum beam candlepower was approximately 42 percent as great as the maximum obtained by U. S. Army standard 60-inch searchlight. 2 curves and 11 photographs are included.

United States

PB 9951. CARPENTER, H. L. Installation of batteries in aircraft. (AAF. Eng Div ENG-54-656-697). Apr 1943. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
This is a report of conferences with several aircraft manufacturers to find a new method of servicing aircraft batteries and to change the present cumbersome method of installation in aircraft. A satisfactory quick disconnect terminal was agreed upon for future installations and servicing.

PB 16514. GIESEMAN, E. R. AN standardization of aircraft storage batteries. (Army Air Forces. Expt. Eng. Sect. EXP-M-54-656-542). Jul 1942. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Conference held at Washington, D. C. by representatives of the Bureau of Aeronautics, Aeronautical Board, Naval Aircraft Factory, and Materiel Center to complete standardization of all batteries commonly used by both services. Two batteries presented for acceptance were unacceptable to one branch because the first did not have vent holes in battery container covers to permit discharge of the battery gasses. The second required removal of drain and vent tubes from the battery case and the substitution of vent holes in the container covers. It was decided that instead of conducting tests of different battery venting methods that each new battery be designed so that either installation type could be used, as the different services think most suitable for each individual application.

PB 12077. GIESEMAN, E. R. Special batteries. (Army Air Forces. Engineering Division. TSEPE-6p6-1572). 1946. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
Report on Joint Battery Advisory Committee meeting held at National Bureau of Standards, January 24, 1946, to discuss research and development of special batteries. Conference was called to formulate a program to provide all interested agencies and bureaus with detailed performance and design characteristics of all conceivable types of secondary batteries (including airplane, propulsion, small type, alkaline storage and storage for one shot applications) and both dry (low temperature and constant voltage) and wet (perchloric acid, silver peroxide and silver chloride) primary batteries, necessary in design of weapons to fit available batteries, selection of best available battery, and initiation of research where no existing battery meets requirements.

PB 18816. JACKSON, L. R. and others. Fatigue properties of flash welds. Progress reports first and second, May 15, 1945. (OPRD Rept M-191) May 1945. 90 p. Price: Microfilm-$1.00 - Photostat-$6.00
The object of the work reported was to determine the fatigue strength of the various zones in flash welds. Fatigue tests were made on unnotched and notched rotating beam specimens made from SAE 4130 round bar in both the welded and unwelded condition. From these tests it was determined that the endurance of flash welds in SAE 4130 steel is higher than that of the normalized material. Where the endurance of flash-welded SAE 4130 steel must be close to that of the unwelded material, having an ultimate strength of 150,000 p.s.i. or higher, the specimens should be heat treated after welding. Fatigue tests on flash-welded simulated tube sections are described and the test results summarized. Results indicate that the combined effect of internal flash, surface decarburization, surface roughness, and eccentricity of tubes, gave a strength reduction factor of about 4. Graphs, tables and photographs are included. These investigations were carried on at the Battelle Memorial Institute.

PB 10126. PACEY, J. J. Flame tests on propeller wiring harnesses. Jan. 23, 1946. (Army Air Forces. TSEPR-593-73). Jan 1946. 18 p. Price: Microfilm-50¢ - Photostat-$1.00
To determine the ability of wire insulation in the various assemblies to withstand flame, the resistance between conductors and between conductors and conduit was measured by means of a Meg insulation tester. The flame used was from a kerosene torch with flame temperatures of approximately 1800°F. A description and identification of the wires and conduits and results of the tests are given in appendices after being in the flames for three minutes. Eight photos showing effects of flames are given.

PB 16540. TOLENTINO, J. G. Life test on airplane indicator lamp T-1-1/4 bulb clear, amber cap, special screw base. (Army Air Forces. Expt. Eng. Sect. EXP-M-54-656-607). 24 Nov 1942. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Test to determine life burning time of airplane indicator lamp T-1-¼. The design voltage, according to formula given, is 3.00 volts and its design life is 350 hours. Average test life of 14 lamps, converted to design voltage was 323 hours. Therefore, it was rated as reasonably close to rated average life at design voltage.

PB 13371. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Portable electric lamp for command posts. (Engineer Board Rept 780) Dec 1943. 52 p. Price: Microfilm-$1.00 - Photostat-$4.00
To meet requirements of interior illumination of tents used at command posts, a portable, electric lamp was developed in conformity with military characteristics submitted by Army Ground Forces. The lamp employs standard vehicular double filament, 21 and 3 candlepower, tail lamps, and is powered by standard vehicular batteries. Four levels of illumination are provided, varying from adequate lighting for drafting and similar tasks to permissable blackout lighting for the most translucent tent fabrics. The unit will operate 40 hours continuously from batteries of the type employed in 1/4-ton, 4 x 4, trucks. Diagrams, photographs, tables. Some parts of report are deleted.

FUELS AND LUBRICANTS

PB 18903. ACTON-TAYLOR, R. A., and WILLIAMS, F. A. Concealed oil plants in the Brilon-Bredelar area. (BIOS Final Rept 39, Item 30) Jul 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
A visit to the Brilon-Bredelar area in Germany in July 1945, led to the discovery of four hidden plants in disused quarries and a wood, as follows: 1) A plant at Messinghausen, operated by the Wintershall A. G. It consisted of two units for the direct distillation of petroleum from Nienhagen near Hanover, each unit having a capacity of about 120 c. m. per day; 2) another distillation plant at Muhlenbein, near Messinghausen, operated by the Wintershall A. G., an exact duplicate of the above plant; 3) a cracking plant at Bredelar which was due for completion in August, 1945, but part of which was being dismantled for emergency use elsewhere; and 4) a plant for synthesizing alcohols and ethers at Bredelar near the above plant 3. This plant had been evacuated from Rheinpreussen, but little progress had been made in its erection. It had been in use at the latter place utilizing the unsaturated hydrocarbons from the Fischer-Tropsch plant. It was now proposed to use the cracking gases from plant 3 above. A description of the proposed processes is given whereby it was planned to produce a total output of alcohols and by-product ethers of 200 to 250 tons per month.

PB 18918. CHAFFEE, C. C., and THOMAS, W. H. Munich Technical High School: Interrogation of Dr. K. H. Kadner and Dr. K. Schnauffer. (BIOS Final Rept 118, Item 30) Aug 1945. 73 p. Price: Microfilm-$1.00 - Photostat-$5.00
Dr. Kadner and Dr. Schnauffer were interrogated on the subject of fuels and lubricants in August 1945. Dr. Kadner is a recognized expert on lubricants and during the war served for three years in the Germany Army in charge of a fuel inspection company. He was released in 1943 to carry out researches on lubricating oils for the government. This report contains brief information of the following research projects: The thermal loading of oils in gear boxes and hydraulic transmissions; determination of the constitution of Germany Army oils by high vacuum distillation; substitute oils for metal working in the armaments industry with and without the formation of shavings; the lubricating power of oils; the production of an improved flame thrower having a greater range; and working up residual oils by sulphonation, sulphochlorination and extraction. His answers to detailed questions dealing with aviation fuels, motor fuels, Diesel fuels, lubricants, bitumens, extracts and polymers, waxes, coolants and de-icing fluids, and cable oils are included. The information obtained from Dr. Schnauffer was meager.

PB 17123. RUHRÖL G.M.B.H., BOTTROP. Gas analyses, Dec 3, 1941-Jul 14, 1944 (Gas analysis). (MIS VII 66b 7003014) 1941-44. 90 p. Price: Microfilm-$1.00 - Photostat-$6.00
This is a bound log-book of manuscript data of the analyses of the production of various gases at this synthetic oil plant in Germany.

PB 17129. RUHRÖL G.M.B.H., BOTTROP. Gas-phase analyses, May 27, 1939-Jul 18, 1944. (Vapor phase analysis data). (MIS VII 66b 7003010) 1939-44. 88 p. Price: Microfilm-$1.00 - Photostat-$6.00
This is a bound log-book containing manuscript data of the analysis of production at this synthetic oil plant in Germany.

HIGHWAYS AND BRIDGES

PB 18550. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. Capacity of fixed panel bridge, Bailey type M1, and strength of bridge parts. (Tech. Bulletin 5-277-6) May 1945. 30 p. Price: Microfilm-50¢ - Photostat-$2.00
Section I of this bulletin gives capacity data on simple spans of the normal width fixed panel bridge, Bailey type, M1. These data are based on strain-gauge tests and computations by the Engineer Board. Pending completion of ultimate capacity tests, the data in this bulletin are tentative. Capacity data are for bridges built with parts manufactured in the United States. Section II of this bulletin gives data on the strength of parts and erection equipment. These data are based on computations by the Engineer Board and tables in the British Bailey bridge manual. Capacity bar charts, tables of component parts, tables of formulas for computing basic number of parts and spares for bridges and tables of strength of parts are given.

PB 18549. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. Fixed two-lane through type panel bridges, Bailey type, M1 and M2. (Tech Bulletin 5-277-11) Jul 1945. 32 p. Price: Microfilm-50¢ - Photostat-$3.00
This bulletin describes M1 and M2 fixed two-lane through type panel bridges. The bridge consists of two independent outer girders and a common middle girder, assembled from standard panel bridge parts. The middle girder carries approximately half of the total load and is made about twice as strong as the outer girders. Transoms overlap and occupy alternate transom seating on the middle girder. This type of bridge is used to provide two way traffic where: (1) Two separate sites are not available for building two single-lane bridges; and (2) bridge supports at a demolished bridge are too narrow for two separate bridges, or narrow launching site necessitates lateral movement of separately launched bridges to position them on their bearings. Tables of data and diagrams are included.

INSTRUMENTS (PROFESSIONAL, SCIENTIFIC AND CONTROLLING)

French

PB 16021. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Brinell Hardness Testing Set, French, ME Reg. 7012. Jan 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
The hardness tester manufactured by H. Morin, 11 Rue Dulong, Paris, France, is a tight, portable instrument probably intended for field use which is based on the assumption that the ratio of Brinell Hardness Number to impression diameter is a constant of the loading condition remains constant. This type hardness tester has been used in this country, but is not considered accurate.

German

PB 14638. FREISE, H. Neue ritzgeräte für die luftfahrtforschung (New instruments for investigating stresses by scriber methods). (Reichsluftfahrtministerium, ringbuch der luftfahrttechnik I B 3) (ALSOS Mission, Klotter File 11A) Apr 1937. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
The report describes methods of measuring stress by using scribers to help measure the length of surface movement of a body under stress. When actual movements are very slight, a magnifying glass or microscope is used. Micro-measures are used for testing acceleration, cable length, chain, etc. Larger measures are used in measuring vibration or bending. Various drawings, photographs, and diagrams explain the use of these instruments and methods. In German.

PB 14696. HODAPP, H. and KRÜGER, J. Bericht über untersuchungen an kohledruckbeschleunigungsmessern der firma Askania. (Report on tests of the carbonpile accelerometer of the frim Askania). (ALSOS Mission, Klotter File c). May 19, 1942. 30 p. Price: Microfilm-50¢ - Photostat-$2.00
This is a report describing the static and dynamic tests of the Askania carbonpile accelerometer and its calibration. In German.

PB 17638. I. G. FARBENINDUSTRIE. Über die prüfung der thermischen eigenschaften von kunststoffen. (The testing of the thermal properties of plastics.) (Enlargement print of part of microfilm 185-3) Dec 1932. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
An apparatus is described which tests a cylinder of 10 mm diam and 12 mm height by electrically heating it at a rate of 1 to 2°C per minute. The test cylinder is under 5 kg. pressure and the movement of the pressure plate is read on a scale. Time, temperature and the size of deformation is tabulated. A curve is drawn using the first two data as coordinates which give the softness of the plastic, an excellent criterion for the behavior of the material during molding. The appendix contains photographs and graphs. In German.

Japanese

PB 18647. GERLACH, JOHN G. Japanese ordnance equipment: Japanese wind velocity calculator. (Rept 118). Dec 19, 1945. 1 p. Price: Microfilm-50¢ - Photostat-$1.00
This brief description of the Japanese wind velocity calculator states that it is used to resolve wind velocities into vertical and horizontal components. It consists of four parts: Vertical and horizontal movable hairline indicators, rotating dial, and the stationary element. It is packed in a wooden case.

United States

PB 18328. ADAMS, J. K. and others. The design, accuracy, construction, and use of a range correction computer. (Applied Psychology Panel: Selection and training of fire controlmen (R) memo 2). (NDRC Applied Psychology Panel Rept 123. OSRD Rept 3509). Mar 19, 1944. 14 p. Price: Microfilm-50¢ - Photostat-$1.00
In training operators of rangefinding instruments it is necessary to have some means of measuring the precision of their operation. To do this, one must know the "true" range to the target upon which the student operators are ranging. Assuming that an accurate series of ranges can be obtained from a nearby point, the problem of correcting for disparity in space between a number of rangefinding instruments and the point from which the range is known still remains. The computational labor involved in making these corrections to a number of instrument stations can be largely eliminated by the use of a computer which, given the "true" range and the azimuth angle of the targe from one point, provides immediately and simultaneously the "true" ranges for all stations lying on an approximately straight line. This memorandum describes the design, accuracy, construction and use of such a range correction computer. Photograph and diagrams.

PB 18320. ADAMS, J. K. and others. The reliability and precision of the NDRC and Bausch and Lomb interpupillometers. (Applied Psychology Panel: Selection and training of fire controlmen (R). Rept 2). (NDRC Applied Psychology Panel Rept 122. OSRD Rept 3475). Mar 19, 1944. 36 p. Price: Microfilm-50¢ - Photostat-$2.00
This report is concerned with tests to compare the reliability and precision of the NDRC interpupillometer and the Bausch and Lomb "Duplex P-D Gauge". An analysis of the test of 81 men, measured twice on both instruments by independent examiners showed that (1) the range of measures of interpupillary distance obtained was comparable to that of a male army population; (2) there were no significant differnces between the means or standard deviations of the measures obtained on the two instruments; (3) the dispersion of difference between test and retest is significantly less for the NDRC instrument than for the B & L "Duplex P-D Gauge"; (4) a significantly greater proportion of measurements obtained with the NDRC instruments fall within the tolerable limits required for rangefinder operation (± 0.25 mm.) than do those obtained with the B & L "Duplex P-D Gauge"; (5) the coefficients of correlation for reliability of both instruments are very high and the reliability coefficient of the NDRC instrument is significantly higher than that of the B & L; (6) and the probable error of measurement of the B & L instrument is greater than that of the NDRC instrument.

PB 16203. GAFFNEY, F. J. Manual of operation, model #2 synchroscope. (MIT Radiation Lab Rept M-112). Jun 1942. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
Model #2 synchroscope is an instrument for triggering a modulator at any one of several repetition rates and for viewing the voltage pulse at any desired point in the modulator circuit. A local oscillator for synchronizing the trigger pulse is built into the equipment. The frequency of the local oscillator may be varied to values of 500, 1000, 2000, and 4000 cycles per second. The synchroscope can also be used to observe the voltage pulse from a non-synchronous pulser. Report contains description of circuit and operation instructions. Block and circuit diagrams are included.

PB 14261. HADLEY, CHARLES, F. Microwave wattmeter. (Harvard Univ., Radio Res Lab Rept 411-246). Sep 19, 1945. 34 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes work done in the development of a microwave wattmeter for the frequency range 2700 to 3300 Mc. The author discusses briefly the various methods of measuring power at these frequencies of which the method involving use of a directional coupler and a double-thermistor bridge was felt to be the most promising and was chosen in this case. Calibration procedure and experimental results are given and graphs are included, but the author indicates that additional experimental work is needed. The report contains complete drawings of the directional coupler, a schematic of the double-thermistor bridge, and a drawing of the experimental set-up.

PB 16245. HASCHKE, G. W. Tensiometer assembly, Type C-4, Part No. 38D995. (AAF. ATSC Memo Rept U-ENG-M-51-5790). Jan 1943. Price: Microfilm-50¢ - Photostat-$1.00
Unsatisfactory report on accuracy of Tensiometer C-4 with modification described in T.O. no. 18-1-14. Detailed instructions for clamping tensiometer on cable without displacing or twisting either are given. Tensiometer should be treated with care to prevent overstressing of the spring, which is the important element governing accurate callibration and tension readings.

PB 18478. LAMPSON, G. W. The measurement of transient stress, displacement and pressure: Progress report. (NDRC. Armor and Ordnance Rept A-73. OSRD Rept 756). Jul 1942. 39 p. Price: Microfilm-50¢ - Photostat-$3.00
This report describes methods that have been used at the Palmer Physical Laboratory, Princeton University, for the measurement, as functions of the time, of such quantities as stress, displacement and pressure. Details of the apparatus, including amplifiers, sweep circuits, oscillographs and resistance, condenser, and prezoelectric gages are described, and remarks concerning their performance are included. Diagrams illustrate the text.

PB 18373. LINDSLEY, D. B. A photo bomb-scoring computer for radar bombing. (Applied psychology Panel: Selection and training of radar operators. Informal memorandum No. 29). (Applied Psychology Panel-640). Sep 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This computer is the result of an attempt to perfect the methods of handling the actual measurements of photograph and the computation of errors in photo bomb scoring. It is fastened, more accurate, and more rugged than the paper nomograms currently employed. Practically all the commonly made analyses can be done on the single device, eliminating thumbing through a booklet for the proper chart and manipulating a pair of dividers and a straight edge. The computer is essentially a multi-scale slide rule, containing a case and slide. A description of its operation and uses are contained in the report. A sketch of the computer is also included.

PB 15322. ROWLAND, HOWARD. New type probe for coaxial standing wave detectors. (MIT Radiation Lab Rept 835). Feb 19, 1946. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
A new type probe has been developed to enable accurate measurements of standing waves in a long slotted line. For wavelengths of the order of 100 cm the slotted section is about 150 cm long. This length presents difficult problems in keeping the inner conductor centered, and preventing small irregularities in the outer conductor. A metal probe is maintained in sliding contact with the inner conductor by means of a spring and has a gap in a dielectric sleeve to provide a series capacity. This probe reduces the difference in $(SWR)^2$ readings taken along different parts of the slot from 7% to 0.3%. (SWR) 's as low as 1.01 can be accurately measured with this probe.

PB 18344. SACK, H. S. and BOEHMER, H. W. Some additional remarks on electronic computers for division, multiplication, etc. (Nat. Defense Res. Com. Rept. 14:538). 8 Oct 1945. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
The possibilities, advantages, and disadvantages of the use of a different type of DMV and of a conveater instead of a D.C. differential amplifier in the computers described in NDRC report 15-435 are discussed. Furthermore, some results are given on the application of a computer with clamping tubes to the operation of squaring. Finally, the blocking characteristics of the clamping tubes used are given in a diagram. Graphs, drawings and tables of test results are included.

PB 18049. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for navy model OAF radar test equipment. (Manufactured by RCA Victor Division of Radio Corporation of America, Camden, N. J.). Apr 1943. 29 p. Price: Microfilm-50¢ - Photostat-$2.00
A description of the Navy Model OAF radar test equipment with instructions for its installation, operation, and maintenance. This equipment, which comprises an antenna assembly and a frequency meter, is used to check transmitter, relative power output, and operating adjustments of radar systems which operate at frequencies between 105 and 125 megacycles per second. Tables, diagrams, photographs are included.

PB 18046. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for navy models, OAJ, OAJ-1, OAK test equipment. (Manufactured by Philco Corporation, Philadelphia, Pa.). (NavAer 08-5R-1). 60 p. Price: Microfilm-$1.00 - Photostat-$4.00
This instruction book is divided into three sections dealing individually with each of the three models. The model OAJ Phantom Target Equipment is designed to be installed permanently in aircraft to check the performance of aircraft radar equipment, operating at 10 centimeters. The model OAJ-1 Phantom Target Equipment is designed to be used at aircraft bases to check the transmission and reception of the reflected pulse signal. It may also be used to aid in tuning the radar equipment, to check the frequency of the transmitter, to determine the pulse duration, to check the magnetron spectrum, and to set the local oscillator (Klystron) frequency. It is intended for radar equipment operating at 10 centimeters. The model OAK Standing Wave Measuring Equipment is designed for measuring and adjusting the standing wave ratio on the R-F transmission lines and antennae of aircraft radar equipment. It is used with radar equipment with a RAF of 600 cps and a frequency of approximately 3300 Mc. Equipment supplied, description of major parts, theory of operation, installation, adjustments, operation and other pertinent data are given together with parts lists, drawings, photographs, and schematic diagram.

PB 14910. U. S. WAR and NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for field strength meter TS-153/AP. (CO-AN 08-35TS153-2). Aug 19, 1944. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
This handbook contains information on the installation, adjustment, operation, electrical characteristics, and maintenance of the TS-153/AP Vacuum Tube Field Strength Meter. This equipment is of the uncalibrated type and is designed only to indicate the relative field strength and frequencies of the radiation of transmitters operating within the range of 62 to 72.5 mc. Schematic, parts list, and photographs are included.

LUMBER AND WOOD PRODUCTS

PB 18182. ENGLER, W. P. Use of plywood in German tooling methods; Messerschmitt Plants, Regensburg Area. (U. S. Strategic Air Forces in Europe. Tech. Intelligence Rept R-31) Jun 19, 1945. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
An outstanding material used in tooling the Messerschmitt airplanes was laminated wood which was utilized mainly in large blocks to replace iron and steel in volume; for example, for stretch-forming dies, large die bases, mock-up structures in solid section, and contoured portions of aircraft for forming ides. Where extreme pressure was necessary, a steel face was attached in order to disperse the impact. This wood was also used for minor jig bases, contour bars supporting profiles, and end plates in major jigs. As it withstands considerable strain and can be stressed in all directions, it was the successor to the plastics experimented with in earlier years. Where warping had to be held to a minimum, Oboe wood, or a type of plywood manufactured in very thin sheets, was necessary. The method of making dies from this wood is described. There are also descriptions of the forming methods, assembly lines, and of the assembly jigs, especially of the major jigs about which there was much enthusiasm. These had initial members of rough structure joints and fittings which proved to be great time and material savers. Photographs included.

PB 18906. MALCOLM, A. M. Pulping of beechwood with nitric acid at Wolfen near Leipzig. (BIOS Final Rept 58, Item 22). Jun 1945. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
The process for the manufacture of wood pulp with nitric acid may be outlined briefly as cooking with dilute nitric acid, neutralization and cooking in the digester with soda lye, followed by removal from the digester, chlorination, refining with strong soda lye, and bleaching. Nitric acid used for cooking is waste acid from dyestuffs manufactured in the Farben factory, conveyed to the pulping plant in tank cars. Liquid chlorine and sulphur dioxide are also received in tank cars from the Farben factory. At the end of the process the pulp is brought up from 1 to 4 percent on a suction filter. The greater part of the pulp immediately after passing the last filter is brought up to 50 percent concentration by a high pressure press. It is then cut up into flocks, and conveyed away. The remainder, about 10 tons a day, is passed over a paper machine where it is made into creped paper with a dry weight of 35-40 gms/m^2. The machine runs at a speed of 70 metres a minute, and the moisture content of the sheet is about 6 percent. The dry crepe is sent away for the manufacture of cellulose acetate whereas the wet flock is used at once for the manufacture of cuprammonium rayon and staple fiber. Pulp analyses and costs of production are given. A flow sheet of process is included. (This will not reproduce well). Because of difficulty of disposing of waste liquors, an evaporation plant was built. After evaporation to 40 per cent, the liquor is sent away to the Farben factory, where it is burnt at a low temperature to give a mixture of active carbon and sodium carbonate, which is sold for use in a metallurgical process.

PB 18461. U. S. NATIONAL DEFENSE RESEARCH COMMITTEE. TROPICAL DETERIORATION ADMINISTRATIVE COMMITTEE. Information on cork gaskets. (Misc Rept 9). Nov 1944. 32 p. Price: Microfilm-50¢ - Photostat-$3.00
Collected together under the above heading are three documents: (1) U. S. Army Ordnance Department, Tentative specification, AXS-958, May 28, 1943, entitled "Gasket material"; (2) The Engineer Board, Fort Belvoir, Virginia, report CR-28-a, April 17, 1944, a Syllabus; and (3) Corps of Engineers, Engineer Board, Tentative specification, EBP no. 628, April 17, 1944, entitled "Cork-composition; gasket and sheet, mildew resistant". The first document deals with granulated cork as the material for gaskets. The second document is concerned with methods of making the cork-composition gasket mildewproof. The mildew resistant agents recommended for use were: phenyl mercuric oleate; Pyridyl mercuric chloride; and pyridyl mercuric acetate. Tables give composition of glue bound gasket and resin bound gasket, and mildew proofing treatments.

PB 18596. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. Carpentry. (Tech. Manual TM5-226). May 6, 1943. 269 p. Price: Microfilm-
This manual describes carpentry methods and the care, use and maintenance of carpenter tools. Tools not fully described are covered in TM5-225 and the various technical manuals on individual tools. The term "carpentry" as used in this manual means the technique or craft of the carpenter, and includes the functions of the carpenter in maintaining, repairing, and constructing buildings, bridges, and other wooden structures. Report includes classification of types and qualities of timber, description of types of tools, and instructions on construction and reading of blueprints. Photographs and diagrams are included.

MACHINERY (EXCEPT ELECTRICAL)

German

PB 15015. ALT, ERNST. Allgemeine Thermodynamik der vergasung im vergaser-Otto-motor (General thermodynamics of carburation in Otto motors). (Reichsluftfahrtministerium Ringbuch der luftfahrttechnik IV B 7). (ALSOS Mission, Klotter File 11 D). 1939. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
Uniform mixture for all cylinders of a motor is important for smooth and efficient performance. This can be achieved by vaporization of the largest portion of the fuel in the carburetor for which purpose the fuel, rather than the air, must be preheated. There is a definite relationship between the temperature of the mixture and the quantity of evaporated fuel. This report deals with the question of bringing about a state of thermodynamic equilibrium in the mixture, or a state approaching this equilibrium. Graphs. Bibliography. In German.

PB 15016. AUGANN, R. and others. Regelgesetze für die Gemischregelung von Einsprits-Zündermotoren (Rules for mixture regulation in injection motors). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik IV B 8). (ALSOS Mission, File 11 D). 1939. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
Fully automatic regulation of the mixture in injection motors requires a thorough knowledge of circumstances by which the mixture and its combustion is influenced. This report discusses to what extent the various running conditions of the motor affect the formation of the mixture, the rules by which it is governed, and how it can be controlled by proper setting of the regulator. Graphs. In German.

PB 22952. ARBEITSGEMEINSCHAFT PULVERMETALLURGIE. Pressform für zubringer n.Z.Nr. 1E1402-16 (Assembly and detailed parts drawings of powdered metal pressing die used at V. D. M. Sintermetallwerke, Neurod). 1942. 46 p. Price: Microfilm-50¢ - Photostat-$4.00
This German material consists of 46 assembly and detailed parts drawings for a powdered metal press die, designed by Arbeitsgemeinschaft Pulvermetallurgie (Industrial Association for Powder Metallurgy), and used at V. D. M. Sintermetallwerke (V. D. M. Slag Metal Works), Neurod, Germany.

PB 14758. ARNOLD, R. Neue Beiträge zur abkürzenden Drehschwingungsrechnung mit Hilfe der Ersatzmasse. (ALSOS Mission, Klotter File 9 c). Sep 19, 1944. 90 p. Price: Microfilm-50¢ - Photostat-$6.00
This is a dissertation in which the author visualizes equivalent masses for each torsional oscillating component of a reciprocating engine; as a result he obtains harmonic vibrations of the individual masses with a common frequency and phase. The report includes graphs, tabulations, diagrams and also a reprint (somewhat edited by the author) from the "Automobiltechnische Zeitung" 47(5/6): 95-111, (7/8): 153-158, Mar.-Apr. 1944 entitled: Schwingungsrechnung mit hilfe der ersatzmasse und der ersatzkraft (The calculation of oscillation by means of the equivalents of mass and force). In German.

PB 14610. BARTSCH, H. J. Sogpumpen und luftpresser für die Hilfseinrichtungen des flug - und triebwerks. (Suction pumps and air compressors as auxiliary equipment of airplane and power motors). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik III A 10). (ALSOS Mission, Klotter File 11 C). Mar 31, 1938. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
The construction and operating procedure of various types of pumps are described; in addition, the particular application and uses of these pumps are also described.

PB 18143. BLOOMFIELD, D. D. BMW 801 Crankshaft assembly at BMW Oberwiesenfeld Plant, Munich, Germany. (AAF Tech Intelligence Rept P-44). Aug 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Interrogation of German personnel and examination of the unit indicates selectively assembled journals and counterweight fitted within a 17-23 ton pressure. A steel plug with copper-plated surface is fitted into the end of the journal, thus locking the journal into the counterweight web. A hollow crankshaft bolt though the center of the plug is screwed into threads inside the crankshaft journal, thus locking the whole assembly. Crankshafts can be assembled and disassembled without any difficulty. Drawing is given.

PB 7461. THE BROWN BOVERI REVIEW. Vol. XXIX No. 9/10. Sep/Oct 1942. 50 p. Price: Microfilm-50¢ - Photostat-$4.00
This is a special Marine number of The Brown Boveri Review covering the month of September and October 1942. It contains twenty articles with illustrations as follows: 40 years of Brown Boveri Marine Machinery Development; Milestones in the forty years' activity of Brown Boveri in the marine machinery field; Brown Boveri Turbines for the propulsion of merchant vessels; seom reflections on the propulsion of ships by means of combustion turbine; The Diesel-Electric three-phase propulsion of high-powered ships; special design of Velox boiler for ships; the distribution of pressure and the repartition of steam flow in marine turbines on overload; control and safety features of Brown Boveri marine turbines; The distribution of the pressure in marine turbines with varying load; Marine condensing plants; Marine gears; Why does a gear sing? how can the singing be avoided?; Turbine-driven marine auxiliaries; Electrical auxiliary machines and apparatus for ships; The charging of four-stroke-cycle marine diesel engines; Workshop tests on ship machinery; Modern short-wave transmitter for ship to shore traffic; The Brown Boveri frigibloc as high-capacity refrigerating on board ships; Brown Boveri geared coupling; and, Electric welding machines for shipyards and ship owners. This is enclosure A of PB 7456.

PB 18946. BUSWELL, G. A. and others. Knitting machine manufacture and development. (BIOS Final Rept 217, Item 31) Oct 1945. 25 p. Price: Microfilm-50¢ - Photostat-$2.00
Brief descriptions of visits to the following targets are given: Terrot Sohn, Cannstadt, Stuttgart (Circular Knitting machine manufacturers); Gebr Hauge, Stuttgart (Circular knitting machine manufacturers); Benger und Söhne, Stuttgart (Underwear manufacturers); W. Kleyle A.G., Stuttgart (Ladies' and children's knitted outerwear manufacturers); Union Special Machinen Fabrik G.m.b.H., Stuttgart (Sewing machine manufacturers); T.Groz und Sohn, Ebingen (Knitting machine needle manufacturer); H. Stoll & Co., Reutlingen, Württemberg (Flat knitting machine manufacturers); Rentz, Plietzhausen, Württemberg (Hosiery manufacturer); Foquet und Frans, Bottenberg, Württemberg (Circular knitting machine and standard screw manufacturers). It was concluded that no major technical development was carried out during the war by any of the knitting machine manufacturers visited. Drawings and fabrics removed are listed.

PB 18674. CLAXTON, EDMUND. German textile roll-covering materials. (Sixty drawings of the Eckert & Ziegler double screw extrusion machine). 1944. 93 p. Price: Microfilm-$1.00 - Photostat-$7.00
This report consists of a list of parts of the double screw extrusion machine accompanied by 74 drawings of parts. It is a supplement to PB 2235, listed on page 127 of this bibliography.

PB 16790. DESCRIPTION and operating instructions for the Dräger pressure regulator, type D-16U, made by Drägerwerk Lübeck. n.d. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
This pressure regulator designed for a maximum of 205 atm. serves for lowering the pressure of high pressure compressed air to a desired working pressure. It is emphasized in the instructions that the filters must be cleaned frequently since trouble free operation can only be insured by the use of completely clean compressed air. A detailed description of this equipment and its operation and maintenance are given in this report. Drawings and a list of parts are included.

PB 16789. DESCRIPTION and operating instructions for the Dräger pressure regulator type D-N4 made by Drägerwerk, Lübeck. n.d. 21 p. Price: Microfilm-50¢ - Photostat-$2.00
This pressure regulator serves for lowering the pressure of high tension compressed air to a desired working pressure. It is designed for a maximum pressure of 30 atm. The low pressure side may be adjusted to 0.5 - 3 atm. It is emphasized that the installation must be done in such a way that the screwed in dust filters may be easily cleaned and removed, since trouble free operation can only be insured by the use of completely clean compressed air. This regulator operates with a lever transmission between the regulating spring for the low pressure and the closing device. Detailed description of the appartus, its operation and maintenance are included in this report. Drawings are included.

PB 18945. EVANS, H. M. and others. Visit to German typewriter factories. (BIOS Final Rept 194, Item 35) Nov 1945. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
It was possible to see only a small proportion of the pre-war German typewriter industry as nearly all the largest and most up to date manufacturers are situated in the Russian zone. No very up to date methods seem to be in use, most methods either conforming almost exactly to the British standard practice or even to practices abandoned years ago. The whole German typewriter industry is relying at present on its existing stocks of type, and is very concerned about future supplies. At present there is a heavy demand from Russians for type to convert Roman to Russian script. Italian typewriters were imported during the war, of which Olivetti was the best. The body and key-lever of a Russian made typewriter seen in Germany are similar to the Underwood typewriter, but the carriage is more like the Continental. Descriptions are given of visits to the following plants and their manufacturing processes: Torpedo Weilwerke A.G., Hödelheim, Frankfurt am Main (Torpedo Company is really a subsidiary of Remington-Rand who bought it in 1934 when importation of typewriters into Germany was stopped); Torpedo Weilwerke A.G., Gross Karben nr. Frankfurt (portable typewriter manufacturing); Adler Werke, Frankfurt am Main (Typewriter section removed to Holzwerke G.m.b.H. at Bruch Kobel in Hanau); Triumph Werke, Nürnberg; Orga Werke, Nurnberg (Notice at entrance states this plant taken over by Royal Typewriter Co., Inc., of New York); W.Feiler, Sophien Str. 30-31, Berlin (Factory in Russian Zone visited); Ransmayer & Rodrian, Steinmetzstr. 45, Berlin-Neukölln. Production figures, wage rates, costs and sketches of parts are included.

PB 18899. GROVER, S. F. and others. Carl Schenck, Maschinenfabrik Darmstadt G.m.B.H., Darmstadt: Vibrating tables, balancing and fatigue testing machines. (BIOS Final Rept 11, Items 27, 31). n.d. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
This is a report of a visit to Carl Schenck Maschinefabrik, Darmstadt, Germany, to investigate the development, design and manufacture of vibrating tables, balancing machines, and fatigue testing machines. It was considered that the vibrating tables and balancing machines manufactured were of orthodox construction and design, and that there was little of interest to be learned from the development program. With reference to fatigue testing machines, a new design of a tension-compression machine operating on the resonant frequency of a helical spring, and a large machine of 400 tons capacity, capable of applying simultaneously two fluctuating loads at different frequencies, were found to be of interesting design. The report describes briefly the various products manufactured.

PB 18775. HOKRTZ, NORMAN and BOGUE, L. E. Carburetors for automobiles as produced in Germany. (FIAT Final Rept 612). Dec 1945. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
All research and development work on carburetors was suspended for the duration of the war. There were therefore no new developments, and no other new systems of supplying fuel to engine cylinders were used other than the well-known carburetor, diesel injection or gas burners. Several engineers expressed the opinion that carburetors will never be replaced by injection on passenger automobiles and small engines because of the elaborate mechanical layout necessary with its greater initial cost, despite arguments as to subsequent economies. Apparently gasoline engines with carburetors were used in tanks because the size and weight of Diesel engines did not

readily fit into the available engine space in tank design. Many passenger cars and trucks were converted over to charcoal burners, running on producer gas. The Maybach 300 h.p. engine was equipped with two Solex Downdraft Twin Carburetors with four floats. The Maybach 700 h.p. engine, which was developed for tiger tanks after the war began, was equipped with four Solex downdraft twin carburetors. These carburetors were designed to operate in any direction on a 40% grade, but were alleged to be capable of greater angles. Photographs and sectional drawings of carburetors are included.

PB 5347. HOFFMAN, R. E. and BARRETT, J. G. Study of design and performance of the German Bosch fuel injector and automatic control. (AAF. ATSC Tech Rept 4683). Sep 1941. 70 p. Price: Microfilm-$1.00 - Photostat-$5.00
The object of this test was to study and report upon the design and performance of the German Bosch fuel injector and automatic control unit, which is used on the Daimler-Benz Model 601A engine. The report gives a complete description of the fuel pump and automatic device with five drawings of the injector and its various parts. The test, fully described, indicates that the subject item is satisfactory. It is recommended that a manifold pressure type control similar to the one tested be adapted to American built engines for testing. Graphs.

PB 15013. HOLZWELDER, C. Allgemeine thermodynamik der gemischbildung bei der einspritzung im Diesel - und zündermotor. (General thermodynamics of mixture formation at injection in Diesel and reciprocating motors) (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik IV B 4). (ALSOS Mission, Klotter File 11 D). 1939. 26 p.
Price: Microfilm-50¢ - Photostat-$2.00
This report deals with the intimate connection of mechanics and thermodynamics in the process of mixing air and fuel in combustion motors. The mechanical part of the process is considered as far as it affects the thermal side of mixing, the heat transition, evaporation and chemical reaction up to the start of combustion. Also the difficult properties of Diesel fuels and reciprocating engine fuels are examined in relation to the thermodynamics of the mixture. Graphs and photos. Bibliography. In German.

PB 14875. HUSSMANN, A. Schwingungen in schraubenförmigen ventilfedern (Surging in helical valve springs). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik IV A 1) (ALSOS Mission, Klotter File 11D) Sep 1937. 19 p. Price: Microfilm-50¢ - Photostat-$2.00
The vibration stresses of helical valve springs are studied. The natural vibration of the spring and other harmonics are compared. Electrical, optical and stroboscopic instruments are used in these tests. A comparison and evaluation of the tests is made with theoretical results. Formulas, tables, curves, bibliography. In German.

PB 18892. JOBERT, A. H. and DINGLEY, E. Hydraulic profile milling machine, constructed by Dr. Fritz Faulhuber at Murrhardt near Sulzbach. (FIAT Final Rept 628) Jan 1945. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
In an engineering office and a small plant set up for experimental purposes only in the town of Murrhardt, Dr. Faulhuber has constructed an experimental hydraulic profile milling machine which is capable of reproducing any given profile within .005 mm. From Dr. Faulhuber's description of the hydraulic system, it is believed that he uses a balanced hydraulic system which is unaffected by the foaming of the fluid or by small leaks. The machine is capable of producing completely universal motion in any plane. Dr. Faulhuber was engaged in research work to simplify the mechanism, and in as much as this machine was still in the process of development, no catalog information was obtainable. Most of the engineering information is in the form of incomplete, partial sketches and drawings. Appendix A, attached to the report, is a translation of a German article with a sketch describing the method of operating copy milling machines used for deep and outline milling. The sketch will not reproduce well.

PB 18890. KNIG, R. J. and COWDEROY, J. A. Report on visit to M.A.N. Research Laboratory, Heinrich von Buz-Strasse, Augsburg. (CIOS File XXXIII-II, Item 18). May 1945. 22 p. Price: Microfilm-50¢ - Photostat-$2.00
Laboratory is fully equipped with large static and dynamic testing machines and a wide range of electrical and mechanical instruments for recording strains, displacements and pressures. Design and development of special test equipment had been undertaken on a large scale. Thorough stress analyses and endurance tests were made on full size components of internal combustion engines. No fundamental research seems to have been conducted, but development work was thorough. Testing machines are described. A list of testing reports taken at the M.A.N. works is appended.

PB 15156. MASCHINENFABRIK AUGSBRUG-NÜRNBERG A.G. Wartungsvorschriften für M.A.N. - Dieselmotoren viertakt-Bauart mit luftloser brennstoffeinspritzung typ: WV (fur elektrische und für luftanlassung) (Operating instructions for the M.A.N. Diesel engine type WV, four cycle injection type with electric or compressed air starter). May 1942. 62 p. Price: Microfilm-$1.00 - Photostat-$5.00
These are factory-furnished instructions for the operator of subject engine. They contain the principle adjustments to be made and general rules and descriptions. The appendix has drawings of the various component parts. In German.

PB 18782. MEYER, G. A. Report on Velox boilers. (FIAT Final Rept 734). Feb 1946. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
The subject boiler was developed for combustion under pressure, that is, high speed conduction which cut down the size of the heating units. The fuel chamber is super-charged. The internal pressure is kept constant by an axial blower. The blower is driven by a gas turbine which receives its gas supply from the supercharged combustion chamber of the steam generator at 500 to 550°C. This boiler can operate with fuel oil, but if washed blast furance gas or coke oven gas is used, a gas blower is added to the air blower shaft of the gas turbine. These units are started by a variable speed motor or by a turbine in which case the air gas ratio cannot be altered. With its small cubic content and its 45 ton weight, the unit produces 22 tons of steam per hour at 30 atmosphere with coke oven gas. This Brown-Boveri Velox boiler was built in Mannheim and installed during 1941. Only six of them had been installed in Germany.

PB 18790. MEYER, G. A. Schnitger and propellers developed for dock trials by Deschimag A.G. Weser, Bremen. (FIAT Final Rept 583). Dec 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
The Schnitgen propeller, developed as a substitute for the Kort Nozzle has a nozzle built into the wheel, thereby eliminating the installation of the nozzle ring on the hull of the ship. The Deschimag test propeller was designed to throttle the flow of the water, streamlining it down stream. Photographs of both are included. Details of construction of Schnitger propeller and data sheets and prints of Deschimag propellers have been filed with Shipbuilding Subcommittee in Washington.

PB 18893. MODINE, A. B. Thread rolling process for finned radiator tubes. (FIAT Final Rept 582). Feb 1946. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Description of a thread rolling process for making aluminum integrally finned flat tube channels as used in radiators for liquid cooled aircraft engines. Aluminum tubing, fitted on a mandrel, is rotated against a thread rolling unit, then notched, flattened and welded into a conventional radiator. Drawing is included.

PB 18152. MOORE, W. W. Technical inspection of Sud Deutscher Kuhler Fabrik, Stuttgart SO2. (AAF Tech Intelligence Rept F-26). Jun 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00

Unique process for manufacturing aluminum radiator tubes observed at Herman Ulrich-Machine, Esslingen has been adopted as standard for all medium pressure radiators. Standard aluminum tubing, cut to the correct length is mounted on a snug mandrel and clamped endwise in an engine lathe. A saw tooth collar clamps top and bottom, and the tube rotated against 4 rollers, producing spiralled fins with a lead of 11 per inch. Process is given in 8 steps.

PB 18778. POPPE, A. W. JR. Ferdinand Porsche - 10 cylinder Vee type air cooled 300 HP gasoline engine. (FIAT Final Rept 685). Feb 1946. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
This engine was being developed at the request of the German Government for air-cooled military vehicle engines. About 100 engines had been built but they were not entirely successful. Although considerable development work will have to be done before it can be considered a successful engine, there are certain design features that are worth studying. Outline of detail performance and design characteristics are contained on the attached engine specification form. The engine is built with the unconventional number of 10 cylinders arranged in two banks of 5 each in Vee form. The air cooled cylinder is of aircraft type machined from a steel forging threaded at the upper end to receive the aluminum head and flanged at the lower end for attachment to the aluminum crankcase. The engine is built in a unit with an electric generator for electric drive to the vehicle. The value of 4.6 pounds per horsepower is a very favorable figure since it includes the generator which corresponds to the transmission of a mechanical drive unit.

PB 18170. PUFFER, S. R. Manufacture of air cooled turbine bucket for 003 TL Unit, B.M.W. Munich Oberweisenfeld, 6.432, 6.514, 6.610. (AAF Test Ingelligence Rept P-12). Jun 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
The design of the insert inside the bucket directs the cooling air against the surfaces and away from the middle, which minimizes flow of air and resultant losses. Manufacturing process of this bucket is given.

PB 18887. KEPP, JOHN J. JR. Gusken loom works, Dulken, Germany. (FIAT Final Rept 559). Oct 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Most of the machinery from this factory had been moved to Thüringen, Germany, when the Allies were advancing. Before the war they produced a double shuttle pile loom that will weave 2 fillings in each top and bottom piece. The shuttles picked at the same time from opposite sides of the loom, pass one under the other, going in opposite directions. This type loom is now in operation at the Lister plant in England. It is used for fabrics where two counts of filling in the same piece are desirable. The wire loom development — cut and uncut frieze — has wire tracks on each side, throwing two wires fastened to the same head. The wire tracks are detachable, and there are brackets for a second pin roller, traverse knife motion, etc., enabling the loom to weave double shuttle plush. This loom operates at 80 picks per minute when using the wire motion. It can be speeded up when weaving double shuttle plush. There are 3 boxes on each side permitting the use of 5 fillings for single shuttle work. This type loom is also now in use at the Lister plant.

PB 13209. RICHTLINIEN FÜR DEN BAU VON SCHIFFSLADEWINDEN. (D.I.N. specification for standard ship-loading winches) (Supplement to PB 968: Investigation of the latest ship designs and operating expenses with the technical personnel of the Hamburg-America Steamship Line). May 1942. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This report contains tentative official German DIN specification for winches used for the loading of ships and instructions for their operation and servicing.

PB 15007. RINKERT, P. and MAIER, K. Grundlagen der Drehschwingungsberechnung (The principles of the calculation of torsional vibrations). (Reichsluftfahrtministerium, ringbuch der luftfahrttechnik IV A 3). (ALSOS Mission, Klotter File 11 D). Jun 1938. 22 p. Price: Microfilm-50¢ - Photostat-$2.00
The study is based on the fact that the torque-curve of a reciprocating engine can be visualized as the sum of sine-curves of individual torques. At certain revolutions the natural oscillation frequency of the crank-shaft may coincide with any one of such individual torque frequencies which would result in additional torsional vibrations of the crank-shaft. The calculation of the natural oscillation frequency of the crank-shaft in two different ways. Tabulations and graphs are included in the text. In German.

PB 7412. SCHATTSCHNEIDER, MAX. The gas turbine in the foundry. (BIOS Evaluation Rept 287) Dec 1945. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
This is a translation, by K. A. Goudge, of a publication issued by Brown, Boveri & Co. A.G., Manheim, Germany, describing the course of development of gas turbines built by Brown, Boveri & Co. A.G.; Holzwarth turbine, driving turbo-blower with exhaust gas grubine power; Velox steam generator and pure gas turbine, the use of the gas turbine in connection with the air blower and preheating in various connections with the Velox-boilers, supercharged air heater and pure gas turbine; place, space and working materials required for the various kinds of operations; and economical expenses divided between interest on capital, cost of fuel and cost of operating. Diagrams and illustrations are missing.

PB 15011. SCHMIDT, E. Wärmeleitung, wärmeubergang, wärmestrahlung (Heat conduction, heat transmission, heat radiation). (Reichsluftfahrtministerium, Ringbuch der luftfahrtechnik IV B 2) (ALSOS Mission, Klotter File 11 D). Jul 1938. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
This report presents tables and formulas for the calculation of the conduction, transmission and radiation of heat with particular reference to thermodynamics of combustion motor cylinders. Graphs. Bibliography.

PB 22623. TRUSLOW, J. L., and JONES, R. M. List of samples pertaining to reports: FIAT 468, PB-12183, Zellwolle Lehrspinnerei, Denkendorf, Kreis Esslingen, Württemburg; and FIAT 473, PB-15137, Vereinigte Glanzstoff Fabriken, Obernburg/Main. n. d. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
This is a list of 14 samples evacuated from Germany by J. L. Truslow and R. M. Jones in connection with their reports on textile machinery listed above. These samples are on display at the Textiles Section of the National Bureau of Standards, Washington, D. C., and may be viewed at any time during business hours by interested persons. They are also available for display at meetings of the industry or of engineering societies. Among these samples are a receiving package, ply yarn, 2 for 1 twister; paper tube roving bobbin; supply package, cable yarn, 2 for 1 twister; a "solid roll" and a "shell roll" with roller bearings for use with a "Pendelwalze"; and special fillet wire for flat stripping roll. FIAT Report 468 (PB 12183) is abstracted on page 776 of this bibliography and FIAT Report 473 (PB 15137) is abstracted on page 855 of this bibliography.

PB 18909. TURNER, D. Bosch sparking plug factories. (BIOS Final Rept 68, Items 19, 22, 26). n.d. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
Through interrogation of officials and visits to Bosch plants in the Stuttgart area, it was learned that all products and production methods were similar to those of English firms. The standard ceramic material was of the sintered alumina type containing approximately 85% alumina. A new ceramic insulator known as Pyranit 3 containing approximately 96% alumina had been developed but was not in the production stage. Another important development was the use of thermoplastic additions to the unfired ceramic batch to enable complicated shapes to be formed by an injection moulding process. Details of the composition and manufacture of the ceramic products, of the plastic moulding process and of assembly methods in spark plug manufacture are included.

PB 18695. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Evaluation report captured enemy equipment: German lightweight block and tackle with plastic sheaves. (Reg 3179). Mar 19, 1946. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes a captured German storage chest containing block and tackle 2000 with adjustable bands XII (aufbewahrungskasten Flaschenzug 2000 mit Verstellkaliberbändes XII, mit Inhalt). This German block and tackle provided with plastic sheaves and rayon rope weighed approximately 2/3 as much as the Corps of Engineers equipment with standard commercial blocks and natural fiber rope. Photographs.

PB 18693. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Evaluation report, captured enemy equipment: German single stage air compressor. (EB Reg 3271). Mar 1946. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes a captured German compressor unit made by the conversion of a standard four-cylinder gasoline engine, using two cylinders for the engine and two for the compressor. A photograph of the unit is appended.

PB 16026. U.S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Letter report, German gasoline operated paving breaker and accessories, EB Reg No. 7030. 26 Jun 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
The subject item is a gasoline operated earth digging and paving breaking tool manufactured in France. The captured tool is believed to be comparable in every way to the standard Corps of Engineers tool except for the arrangement of the coil and battery. Photograph.

PB 13852. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Unit, gas oil filtration, with accessories and filter pads, small, Ser. #57-168A-2-German. (Engineer Board Rep. 2732) 1945. 5 p. Price: Microfilm - 50¢ - Photostat - $1.00
Report contains a brief description of a filtration unit of German manufacture. The filter is evidently for the purpose of removing fine solids from fuel (presumably Diesel fuel) at the dispensing point. Any water separation is incidental. It was tested with 91 octane gasoline under a 16 ft. head. The rate of flow with four hoses operating was 20 gallons per minute per hose. All introduced foreign matter was removed, but the final end product contained fine shreds of the filter cardboard even after running 200 gallons of gasoline through it. The U. S. Army uses individual filters on diesel operated equipment rather than terminal filters at the dispensing point. Three photographs.

PB 18179. WEATHERHEAD, A. J., JR. Technical inspection of Oswald Forst G.m.b.H, Solingen, M-K52 - F-54/86. (AAF. Tech. Intell. Rept. F-38). Jun 1945. 1 p. Price: Microfilm-50¢ - Photostat-$1.00
Plant specialized in making broaching machines and broaches used in making gears, rifling for anti-tank guns and for aluminum turbine wheels for Junkers jet engines. Flat broaching of aluminum for cylinder heads and timing gear housings has been attempted, but without success.

PB 18144. WEPPLER, W. W. Report on Kleckner-Humboldt-Deutz Engineering Laboratory, Birkenfeld, (C-055810) Germany. (AAF Tech Intelligence Rept F-43). Jun 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
This plant had made Diesel engines and locomotives, but in 1943 they began full scale production of special tools and machines for mass production of aircraft engines. Machines were planned as sub assemblies which could be interchanged with little loss in production. Further study of novel ideas in these units is recommended.

Swedish

PB 18148. ROGERS, E. L. Engineering and design department of V.K.F. Ball Bearing Plant. (AAF Tech Intelligence Rept F-22). Jan 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Visit to and interrogation of personnel of this Swedish owned plant at Bad Kissingen. Research was done on glass bearings to ascertain thier qualities in the reduction of friction in instruments and in electric motors because of their di-electric properties.

United States

PB 16241. CALVERT, R. J. Endurance test of Homelite Model HRU-2SA accessory power plant. (AAF ATSC Memo Rept ENG-54-656-884 M). Jan 1944. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
One hundred fifty hour endurance test and sea level calibration of a single cylinder air cooled engine directly connected to a generator. The model successfully passed all tests with the exception of the one for the shut off valve. Appendix gives description of engine, daily log, analysis of the disassembly inspection and of the completed tests. Results of sea level calibration are shown graphically in appendix 4, and the results of the 150 hour endurance test are shown graphically in appendix 5.

PB 18149. KONGSTED, L. P. Visits to Robert Bosch Dispersal points. (AAF Tech Intelligence Rept F-23). 5 Jun 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Interrogation of personnel of plant used for making tools for manufacture of spark plugs. Repairs on aviation starters, generators, magnetos and all types of electric motors used on aircraft were made here. Another plant repaired and tested aircraft injection pumps, and made and assembled spark plugs. Testing, including adjusting of spark plug gap to .024" was done here.

PB 18847. SLAWSON, C. B. Wire drawing tests on flat-back and electrically drilled diamond dies; Final report. (War Metallurgy Committee Research Rept W-162). Dec 19, 1944. 18 p. Price: Limited free distribution; thereafter, Microfilm-50¢ - Photostat-$1.00
This is a report of tests carried out by the Hoskins Manufacturing Company under contract with the War Production Board. Production tests on drawing of fine resistor wire through diamond dies with flat backs were made to determine if the method of manufacture using this type of back opening would affect the life of the die. Based on the limited number of tests made, the life of the die was found to be independent of the type of back opening used, when the dies were used for drawing wire in the critical sizes (less than 0.0015" in diameter). A few electrically drilled dies were similarly tested. Tables showing performance of dies and diagrams illustrating dies are included.

PB 18387. SUTTON, M. M. Illumination characteristics of portable spotlights. (Engineer Board Project EB 104 Spotlights and floodlights, portable). (Rept 730). Dec 1942. 38 p. Price: Microfilm-50¢ - Photostat-$3.00
This report covers tests made to obtain the illumination characteristics of the several types of portable spotlights now in procurement or which may be applicable for specific uses. The work involved was to determine the beam patterns, maximum beam candle-power, weights, and comparative data on 5 portable spotlights. The results indicated that although the Burgess Spotlight produced an excellent beam, an equal degree of performance could be obtained from the Four-inch Pistol-Grip Spotlight. Inasmuch as this latter light is now being procured for military use, it is recommended in preference to the Burgess Spotlight. Photographs, graphs, and diagrams are included.

PB 16110. ULMAN, J. R., JR. Engine oil temperatures, Ward La France heavy wrecker M1. (General Motors Proving Ground Project 195, Rept PG-2.779). Jun 1943. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
This report covers engine oil temperature stabilization tests on a heavy wrecker truck M1, (Series 2) Ward-LaFrance. The test which required 29 miles of operation indicated that engine-oil temperature reached 300° in an ambient temperature of 110°. A table and graph present data.

PB 18726. U. S. NAVY DEPARTMENT. BUREAU OF YARDS AND DOCKS. Hand erection of the 75-ton N.L. boom. (Revised). (NavDocks P-113). Jul 19, 1943. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
The 75-ton capacity boom is a piece of lifting equipment especially designed to be mounted on a 6 x 18 N.L. (Naval Lightered) pontoon barge. It has a working height of about 66 feet and an overhang of 40 feet from the bow of the barge on which it is mounted. The complete directions for erecting this boom are accompanied by a series of diagrams showing parts of the quipment and arrangement.

PB 18765. U. S. WAR DEPARTMENT. Operator selection and training: Materials handling equipment: Platform trucks, wheeled warehouse cranes, and straddle trucks. (Tech Manual 21-302A). Dec 1945. 22 p. Price: Microfilm-50¢ - Photostat-$2.00
This manual, supplementary to TM 21-302, is devoted almost entirely to specific training procedures for operators of platform trucks, wheeled warehouse cranes, and straddle trucks. Types of trucks and cranes are described illustrated with photographs.

PB 18547. U. S. WAR DEPARTMENT. CHEMICAL WARFARE SERVICE. Beam, grab, M1. (Tech Bulletin 3-255-3) Oct 1944. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
The grab beam M1 is designed to lift 1-ton containers when maximum elevation of the load is desired. Although most frequently used with the trolley hoist, it may be used with other types of hoists. The grab beam M1 is a component of the chemical serious truck M1. It has three parts: Beam, hooks, and yoke. Photograph and diagram are included.

PB 18762. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. Inspections and preventive maintenance services for coal-handling equipment. (Tech Manual 5-676). Feb 1946. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
This technical manual is a guide for personnel who operate and maintain coal conveyers, stackers, car unloaders, and coal crushers. First and second echelon maintenance procedures and forms used to keep records of maintenance performed are explained in detail. Command and technical inspections required to insure a complete maintenance program are also discussed.

PB 18595. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. Military water supply and purification. (Tech Manual TM5-295). Aug 19, 1945. 350 p. Price: Available from Supt. of Documents. Price 55¢
This manual discusses the impurities which make water unsafe to drink and tells how to remove them. It describes military water purification equipment and tells how to use it. Finally, it covers the installation and operation of water points. Photographs, flow diagrams, tables of data, and drawings are given.

PB 18590. U. S. WAR DEPARTMENT. QUARTERMASTER CORPS. Hand, measuring, and power tools. (Tech Manual TM 10-590) May 26, 1941. 121 p. Price: Available from Supt. Documents. Price 20¢
This manual describes the use and care of hand tools, measuring tools, and power tools. Various types of tools are described and their operations outlined and illustrated with photographs and diagrams.

PB 18598. U. S. WAR DEPARTMENT. QUARTERMASTER CORPS. Machines, washing, laundry, domestic (Thor). (Tech Manual TM-1689). Oct 1945. 34 p. Price: Available from Supt. Documents. 15¢
These instructions contain information on the function, operation, and maintenance of the Thor domestic laundry, washing, machine and its accessories. T ese instructions may apply in part to other domestic type electric washing machines of the same construction as the Thor machine. Thor electric model is equippped with a self-lubricating motor, while the gasoline model is equipped with air-cooled Briggs and Stratton engine, model WMB. Instructions cover operation, maintenance, auxiliary equipment, repair, shipment and storage. Photographs and diagrams of machine and its parts are given.

PB 18597. U. S. WAR DEPARTMENT. QUARTERMASTER CORPS. Quartermaster materials handling equipment. (Tech Manual TM 10-1619). Mar 19, 1945. 227 p. Price: Available from Supt. Documents. 60¢
This manual is designed to serve as a descriptive reference for items of materials handling equipment maintained by the Quartermaster Corps; to familiarize personnel with the capacities and the essential mechanical details of the equipment they operate; to assist in proper and adequate maintenance; to act as a guide in standardizing nomenclature used in the requisitioning of equipment and replacement parts; and to encourage efficient specialization by matching the machine with the job. Equipment includes fork lift trucks, platform trucks, warehouse tractors, wheeled cranes, straddle trucks, conveyers, and hand-operated equipment.

PB 18585. U. S. WAR DEPARTMENT. QUARTERMASTER CORPS. Refrigeration. (Tech Manual TM 10-610). Jun 12, 1943. 111 p. Price: Availalbe from Supt. Documents. Price 20¢
This manual includes information on principles of refrigeration, methods of applying refrigeration principles through various types of equipment, analysis of the methods of operation and maintenance of refrigeration equipment, and employment of refrigeration by the armed forces. Appendices contain glossary, trouble dignosis chart for refrigeration machinery, and a test for efficiency of expansion valve. Report includes photographs, drawings and plans of refrigerator systems, charts and graphs.

PB 18599. U. S. WAR DEPARTMENT. QUARTERMASTER CORPS. Refrigerator, portable, chest-type (25 cu. ft.). (Tech Manual TM10-1681). May 15, 1945. 123 p. Price: Available from Supt. Documents. 40¢
The instructions in this manual cover the operation, maintenance and repair of the equipment as well as descriptions of the major units and their functions in relation to the other components of the equipment. Appendix discusses preparation for storage. The equipment described in this report is manufactured by Grauman Co., Quillen Brothers Refrigerator Co., Schaeffer, Inc., Victor Products Co., and U. S. Thermo Control Co. Manual contains many photographs and diagrams.

PB 18408. U. S. WAR DEPARTMENT. QUARTERMASTER BOARD. Report of survey of typewriters, field use of. (Project FS-10). May 1944. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
As the result of interviews and observations, it was concluded that standard non-portable typewriters are preferred to portable typewriters since they perform all the work now, accomplished on the portable equipment and, in addition, permit typing of a greater number of carbon copies, stencil-cutting and the handling of various forms not accommodated by the portable carriage. A need was revealed for cleaning maintenance and repair facilities in the field, and a study of the feasibility of training typewriter repair units for assignment to each division was recommended.

PB 18587. U. S. WAR DEPARTMENT. TRANSPORTATION CORPS. Operation and maintenance of marine hydraulic pumps. (Tech Manual TM 55-325). Jan 19, 1945. 43 p. Price: Available from Supt. of Documents. Price 15¢

This manual describes operating precautions, preventive maintenance procedures, technical inspections and related services concerning the major types of marine hydraulic pumps. Theory and use of various types of pumps are detailed illustrated with photographs and diagrams. A glossary is given in an appendix.

PB 18771. U. S. WAR DEPARTMENT. TRANSPORTATION CORPS. Storage maintenance practice for Transportation Corps equipment. (Tech Bul TC 3). Jan 21, 1946. 55 p. Price: Microfilm-$1.00 - Photostat-$4.00
This publication provides technical information which will enable personnel of the Transportation Corps to properly maintain equipment in open and closed storage for long storage periods. Equipment covered in this manual includes uninstalled marine machinery and equipment, floating equipment, rail items, and cranes and derricks. Recommended procedures for periodic inspections of equipment in storage and for recording such inspections are set up. Diagrams.

MEDICAL RESEARCH AND PRACTICE, INCLUDING CLINICAL APPLICATION OF DRUGS AND PHARMACEUTICALS

German

PB 16794. BENZINGER, Th. Medical division of the experimental station of air force Rechlin. n. d. 19 p. Price: Microfilm-50¢ - Photostat-$2.00
This report regards the Rechlin establishment, started March 1934, and is translated from German in the following parts: I. Organization, II. working conditions, III. tasks and results of the applied research, and IV. scientific tasks and results. None of the enclosures mentioned in the body of the report are attached. It covers the work done in simulated altitude flight, giving results of the investigations and recommendations.

PB 19408. KOLLER, G. Hypophysentätigkeit und erblindung (Reichsforschungsrat) (The activity of the hypophysis and blindness). (ALSOS Mission, RFR 507 22) Dec 1944. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
The report defines three different hormones developed by the hypophysis and describes tests made with rats and frogs. The tests proved as a major result that the water-regulating hormone becomes increasingly ineffective if the tested animals were kept in absolute darkness over a period of time. This fact resulted in the author's theory that if disturbances in the water-system occur after going blind the origin of such blindness is to be found in the hypophysis. In German.

PB 18563. U. S. WAR DEPARTMENT SPECIAL OPERATIONS. Civil affairs guide: Denazification of the health services and medical profession of Germany. (Pamphlet 31-158) Jun 1945. 75 p. Price: Microfilm-$1.00 - Photostat-$5.00
This report briefly outlines the racial theories and racial laws which provided the basis for the changes and innovations the Nazis introduced into the health system of Germany and recommends the measures which will eliminate these salient Nazi features from the system. In addition recommendations are made to cope with the health situation and to prevent the spread of epidemics among United Nations armed forces. This pamphlet was prepared by the Enemy Branch, Foreign Economic Administration.

Japanese

PB 18633. U. S. ARMY TECHNICAL INTELLIGENCE CENTER, TOKYO. Japanese medical equipment: Case, plastic, malarial prophylactic. (Rept 168) Jan 1946. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
This item indicates that the Japanese used both quinine and plasmochin combined as malarial suppressive therapy. The amount of the drug carried was supposed to be sufficient for 30 days suppressive therapy with quinine and 60 days suppressive therapy with plasmochin. A photograph of the kit is attached to the report.

PB 18636. U. S. ARMY TECHNICAL INTELLIGENCY CENTER, TOKYO, Japanese medical equipment: Clamp, ice bag, new type. (Rept 169) Jan 1946. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
This ice bag clamp is made of lacquer covered, pressed steel about 1/32" in thickness with air overall length of 10½" when open and approximately 5" when closed. Two photographs are included.

PB 18640. U. S. ARMY TECHNICAL INTELLIGENCE CENTER, TOKYO. Japanese medical equipment: Kit, first aid, field, tropical. (Rept 166) Jan 1946. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
This item is of interest because it is packed in a waterproof metal container, probably for tropical use, is easily transported, and contains nothing but emergency field dressings. A photograph is attached.

PB 18632. U. S. ARMY TECHNICAL INTELLIGENCE CENTER, TOKYO. Japanese medical equipment: Plasma, human blood, dried. (Rept 162) Jan 1946. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
Samples of blood plasma obtained by the Medical Section were of two types. The one that used by the Japanese Army, the other, by the Japanese Navy. The Navy plasma box is incomplete. A literal translation of the papers contained in the Japanese plasma unit is included as well as photographs of each unit. These items are inferior to similar items used in the United States Army Medical Department.

PB 18637. U. S. ARMY TECHNICAL INTELLIGENCE CENTER, TOKYO. Japanese medical equipment: Set, agglutination, field. (Rept 163) Jan 1946. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
The contents of this set are of the usual type and quality. This set is of interest because it is very compact and contains all the things necessary for agglutination. Two photographs accompany the report.

PB 18638. U. S. ARMY TECHNICAL INTELLIGENCE CENTER, TOKYO. Japanese medical equipment: Sterilizers, field, small, with alcohol burners. (Rept 164) Jan 1946. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
These sterilizers are of usual type and quality. They are of interest, however, since they are small, compact, and simply operated sterilizing units for minor surgical procedures in the field. Two photographs are attached to the report.

United States

PB 18622. CARLISLE, RICHARD C. and others. An evaluation of the irritant, protective and decontaminating properties of M4 ointment. (CWS Toxicological Res Lab Rept 7) Oct 1943. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
The object of the test was to test the relative efficiency and irritant properties of M4 ointment containing various amounts of active chlorine up to 4.5 per cent. M4 ointment containing 1.5% active chlorine was the least irritating ointment tested. The irritancy of M4 ointment was directly proportional the amount of active chlorine present. M4 ointment in any of the strengths tested was unable to prevent vesiculation after being used to decontaminate a mustardized spot on the skin, five minutes after the initial application of the mustard gas. It is recommended that M4 ointment be discontinued as the standard U. S. Army protective ointment.

PB 18833. COWGILL, GEORGE and SALOMON, KURT. Effect of substitution of lead silver for tin lead solder on canned food products: Final report. (War Metallurgy Committee Res Rept W-55) Aug 1943. 57 p. Price: Microfilm-$1.00 - Photostat-$4.00
Twenty-four groups of rats were used in a study of the possible toxicity of three lead alloys administered in the form of solder pellets containing respectively, (1) lead 93%, tin 5%, and silver 2%; (2) lead 95%, tin 2.5%, and silver 2.5%; and (3) lead 97.43%, silver 2.57%. The experiments are further described in this report. The rats receiving 300 parts of lead per million of diet in the form of solder pellets, proved to be quite similar to the control group fed an identical diet but no lead, with respect to growth, concentration of blood hemoglobin and the appearance of stippled cells as well as with respect to the amount of lead stored in their carcasses. It was concluded that ingested solder of the compositions here studied as a source of lead in non-toxic for the young rat. All of the rats in another group which received lead acetate were definitely poisoned. 35 pages of tables are included.

PB 19786. DAVIS, HALLOWELL and others. Physiological effects of exposure to certain sounds: Final report. (OSRD Rept 889) Jul 1942. 82 p. Price: Microfilm-$1.00 - Photostat-$6.00
Particular attention was directed to frequencies in the neighborhood of 1000 cycles, to intensities capable of sustained generation, and to durations of several seconds to a few minutes. In addition to possible lethal effects, the investigation sought for the production of deafness, either permanent or temporary, for temporary or permanent effects on the labyrinthine apparatus affecting posture and equilibrium, and any harmful or disturbing effects on the nervous system that might interfere with the performance of military duties. Guinea-pigs, rats, and cats were used as experimental animals, and the physiological and anatomical findings have been correlated. A new method for physiological study of auditory fatigue and recovery was developed, but not exploited in the study of the effects of intense sound. The production of audiogenic (epileptiform) seizures in rats was studied and the intensities of sound at various frequencies within the audible range necessary to produce such seizures was determined. Human ears were exposed to loud sounds for various periods of time and in addition to the observation of pain and other discomfort the resulting temporary deafness was measured by means of the audiometer. The parameters of frequency, intensity, and duration of exposure tone in relation to the production of temporary hearing-loss was studied in some detail. Preliminary observations were made on the effects of interruption of sound, and on the effectiveness of band spectra and of a continuous spectrum as compared with simple pure tones. Eight photomicrographs of lesions of the inner ear of guinea-pigs are attached to the report. The text is illustrated with graphs and tables.

PB 18823. HALL, R. H. m-Nitrophenyldichlorarsine LC 50 for mice on 10-minute exposure. (CWS Toxicological Res Lab Rept 3) Sep 1943. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
The work in this report was done to check the LC 50 of m-Nitrophenyldichlorarsine. On the basis of analytical concentration of the toxic agent, the LC 50 of m-nitrophenyldichlorarsine to white mice for 10-minute exposure and 10 day observation is 0.32 mg/l. This figure represents an excellent confirmation of the LC 50 of 0.34 mg/l. previously reported. Tables and charts support the data.

PB 18624. KOELLE, GEORGE B. and others. The relationship between cholinesterase inhibition and the pharmacological action of PF3. (CWS Medical Div Rept 69) Jan 1948. 33 p. Price: Microfilm-50¢ - Photostat-$3.00
The object of the experiments reported was to provide a pharmacological background for testing PF3 (diisopropyl fluorophosphate) in patients with myasthenia gravis. A clinical trial of PF3 in myasthenia gravis, following adequate laboratory investigation, is desirable from the point of view of determining: (1) The efficiency of this agent in treating the disease, (2) more accurate data on its human toxicity, and (3) more of the nature of the physiological defect operative in myasthenia gravis. Historical and theoretical, experimental, discussion, conclusions recommendations, and a bibliography make up the report together with charts and figures.

PB 18375. LINDSLEY, DONALD B. Concerning harmful effects of radar operation and "fatigue". (NDRC Applied Psychology Panel 207: Informal Memo 10) Feb 1944. 2 p. Price: Microfilm - 50¢ - Photostat - $1.00
This memorandum summarizes the results of a study of radar operator fatigue. For the complete report of this study see NDRC, Applied Psychology Panel, Research report no. 6 (PB 18366).

PB 18366. LINDSLEY, DONALD B. and others. Radar operator "fatigue": The effect of length and repetition of operating periods on efficiency of performance. (OSRD Rept 3334; NDRC Applied Psychology Panel 121, Research Rept 6) Jan 1944. 38 p. Price: Microfilm - 50¢ - Photostat - $3.00
The purpose of this study was to determine whether long and repeated periods of operation of an a-scan oscilloscope result in loss of efficiency in performance or so-called "fatigue effects". It was desired to know when impairment of performance begins and what relationship it bears to the length and frequency of repetition of operating periods. The study indicated that: (1) Daily repetition of a four-hour period of a-scan oscilloscope operation caused a progressive loss of efficiency in the detection of signals and in the accuracy of determining the azimuth or bearing of targets represented by the signals; (2) Loss of efficiency was related to the length and repetition of the operating periods and revealed itself by an increase in the number of signal omissions, an increase in the rate of making omissions, a decrease in accuracy of azimuth or bearing determinations, and by a general increase in variability of performance; (3) Impairment of performance first became significant with repeated operating periods of forty minutes in duration for a group operating in the afternoon; and (4) Loss of efficiency did not become apparent until the third day of repeated four-hour operating periods. Drawings, graphs, and tables illustrate the report.

PB 18358. LINDSLEY, DONALD B. and others. Visual status of ASV radar operators. (Applied Psychology Panel: Selection and training of oscilloscope operators. Research Rept 9). (NDRC Applied Psychology Panel Rept 136. OSRD Rept 3443B) Mar 1944. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
As a result of tests it was found that a group of 66 ASV oscilloscope operators showed no significant differences in visual acuity or muscle balance when compared to a group of 112 non-operators. Nineteen men, the most highly experienced operators in the group with 500 or more hours in the air failed to show deleterious effects of long continued operations. These results bear out the conclusion of a previous study on air-warning operators to the effect that oscilloscope operation does not produce persistent effects on vision.

PB 11341. MARQUAND, C. B. and others. Solid oxidising agents, their stability, and their theoretical and practical value against liquid lewisite burns. Dec 5, 1942. (CWS MD (RA) Memo Rept 72) 1942. 41 p. Price: Microfilm - 50¢ - Photostat - $3.00
Solid peroxides and solid oxidising agents were tested in the oven at 50°C for stability and on the skin of rabbits and on human skin to determine their prophylactic action against applications of liquid lewisite. Sodium pyrophosphate peroxide and a mixture of sodium perborate and sodium dihydrogen phosphate showed some efficacy in these respects. Certain theoretical and practical applications were found which act as useful criteria for further work. Tables are used throughout the report. A bibliography is attached.

PB 15800. TOUSEY, R. Effect of cathode ray tube screens on night vision. (Naval Res Lab Rept R-2226) Jan 1944. 21 p. Price: Microfilm - 50¢ - Photostat - $2.00
The effect on night vision of CRT screens of various colors and brightness of trace was investigated in the laboratory. Actual radar screens of several types were observed in the field under night time conditions. In general it was found that green trace CRT screens can be made satisfactory as regards night vision by the use of an orange filter and P-7 screens by means of a red filter. Application to actual radar installations is discussed. The work is divided into three parts: First, laboratory experiments on a variety of CRT screens; second, observations on the effect on night vision of several actual radar screens and the use of filters; third, information gathered from various sources concerning those radar installations for which the question of preserving dark adaptation may be important. References, tables, and graphs are included.

PB 18625. UDALL, R. H. and others. Investigation of the toxicity of foods exposed to high vapor or liquid concentrations of CK. (CWS Medical Div Rept 68) Jan 1946. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
The object was to determine if unpacked foods exposed to high vapor or liquid concentrations of cyanagen chloride (CK) are affected in any way which would make them toxic when eaten. A variety of raw foods were contaminated both by exposure to very high vapor concentrations of CK and by spraying with the liquid agent. From the results of the experiments it is concluded that-contamination by CK acted only to destroy some of the food value of the diet and did not have appreciable toxic effects upon the rats.

PB 15166. U. S. WAR DEPARTMENT. Geographical distribution of certain diseases (outline maps only) Jun 1944. 15 p. Price: Microfilm - 50¢ - Photostat - $1.00
This pamphlet consists of outline maps, prepared by the Medical Intelligence Branch, Preventive Medicine Division, Office of the Surgeon General, U. S. Army, showing geographical distribution of the following diseases: Cholera, dengue, filariasis, leishmaniasis, malaria, mite typhus, plague, relapsing fever, schistosomiasis, trypanosomiasis, typhus fever, yaws and bejel, and yellow fever.

PB 15165. U.S. WAR DEPARTMENT. Health precautions for African and Asiatic countries along Southern and Eastern Mediterranean Sea, Red Sea and Persian Gulf. (Pamphlet 8-3) Apr 1943. 21 p. Price: Microfilm-50¢ - Photostat-$2.00
Precautionary measures to be taken by military personnel and travellers in these areas against venereal diseases, diseases carried by insects, animals, water, food, and clothing are presented. For similar information for other areas, see PB 15163-4.

PB 15163. U.S. WAR DEPARTMENT. Health precautions for Central and South Africa and the West Coast of Africa. (Pamphlet 8-1) Apr 1943. 20 p. Price: Microfilm - 50¢ - Photostat - $2.00
Military personnel and other travelers in Central and South Africa and on the West Coast of Africa are exposed to serious health hazards. This pamphlet is designed to cover the potential hazards of a large general area. The subjects discussed are: Water, water economy under desert conditions, foods, clothing, bathing, swimming, housing, insect carriers of disease, diseases acquired from animals, venereal diseases, sunburn, sunstroke, heat exhaustion, minor wounds, vaccinations, and summary of immunizations. For similar information for other areas see PB 15164-5.

PB 15164. U.S. WAR DEPARTMENT. Health precautions for Central and South America and Caribbean Sea Area. (Pamphlet 8-2) Apr 1943. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
This pamphlet indicates the potential hazards of the water supply, foods, clothing, bathing and swimming, housing, insects, other vectors of disease, venereal diseases, sunburn, sunstroke, heat exhaustion, and minor wounds. Precautionary measures are outlined, and a summary of immunizations is included. For similar information for other areas, see PB 15165 and PB 15163.

PB 15171. U. S. WAR DEPARTMENT. Reconditioning training program for class 1 and 2 patients, ASF regional and station hospitals (4 weeks). (Army Service Forces Manual M8) Jun 1945. 10 p. Price: Microfilm - 50¢ - Photostat - $1.00
The purpose of this program was to furnish a general guide for the graduated training of patients in an advanced stage of convalescence from serious illnesses, injuries or surgical procedures so that they may be returned to a duty status in the shortest possible time and in the best possible physical and mental condition. Program of instruction covering educational and physical reconditioning is outlined.

PB 19183. U. S. WAR DEPARTMENT. ARMY SERVICE FORCES. Operating procedures for industrial dispensaries. (Manual M 210) Mar 1945. 30 p. Price: Microfilm-50¢ - Photostat-$2.00
This manual is presented as a guide to be followed in establishing and maintaining adequate medical service for employees in Army-owned and Army-operated industrial installations within the Army Service Forces. It is divided into the following sections: I. General instructions; II. Industrial hygiene engineering service; III. Relationship with Civilian Personnel Department; IV. Preventive medicine program and job assignment; V. Emergency medical or surgical care; VI. Employees returning from sick leave; VII. Records and reports; VIII. Industrial dispensary buildings; IX. Industrial dispensary supplies and equipment. Floor plans, and properly filled out standard forms are included.

PB 19063. U. S. WAR DEPARTMENT. MEDICAL CORPS. Dental X-ray machine. (Tech Manual 8-634) Jan 1945. 47 p. Price: Microfilm-50¢ - Photostat-$4.00
This manual contains information on the operation and maintenance of the equipment, as well as descriptions of the major units and their function in relation to the other components of the equipment. They apply to dental X-ray machines manufactured by H. G. Fischer & Co., X-ray Mfg. Corp. of America, and Weber Dental Mfg. Co. Appendix I contains information on shipment and storage, disassembling, and packing and crating the various models. The manual is illustrated throughout by photographs and drawings and keyed with nomenclature to aid in understanding the text.

PB 19031. U. S. WAR DEPARTMENT. MEDICAL CORPS. Hospital diets. (Tech Manual 8-500) Mar 1945. 135 p. Price: Microfilm-$1.50 - Photostat-$9.00
This manual provides a guide for the arranging, ordering, and preparing of diets not only for the average patient under usual conditions, but also for those requiring highly specialized consideration in their diets. It is also designed to serve as a reference guide for certain values, equivalents, and percentages which of necessity must be considered in the preparation of all diets. Appendix lists dietary reference tables and numerous charts and other tables appear in the body of the manual.

PB 18601. U.S. WAR DEPARTMENT. MEDICAL CORPS. Medical and sanitary data on Spain, exclusive of the Balearic and Canary Islands. (Tech Bulletin MED 165). Jun 1945. 63 p. Available from Supt. of Documents. Price 20¢
Section I of the report is devoted to a general discussion. Section II - The Medical facilities. Section III - Vital statistics. Section IV - Disease information both general and specific. Section V- Summary and recommendations, tables, figure, and an extensive bibliography.

PB 18957. U. S. WAR DEPARTMENT. OFFICE OF THE SURGEON GENERAL. COMMISSION ON AIR-BORNE INFECTIONS. T-13 oil emulsion for the application of oil to bedclothes and wearing apparel. Apr 1945. 38 p. Price: Microfilm - 50¢ - Photostat - $3.00
Preliminary studies in the application of oil to bedding to prevent the dissemination of dust, lint, and bacteria, led to the use of T-13 oil emulsion base which contains medicinal mineral oil and Triton Ne, a non-ionic, wetting and emulsifying agent. This report is a final summary of data compiled by the Commission on Air-borne Infections on the use of the Triton oil emulsion (T-13) as a routine laundry procedure. It includes both laboratory and field studies made at the University of Chicago, Camp Carson, Colorado and Fort Bragg, North Carolina. The majority of the observations were made at Fort Bragg during the study, in collaboration with the Commission Acute Respiratory Diseases, on the control of respiratory disease by oiling floors and bedclothes. The investigations were extended to include woolen and cotton wearing apparel and surgical operating room supplies. Detailed information is given regarding the application of the oil emulsion, the dust and bacteria holding properties of oiled textiles, and cost of the treatment.

PB 19228. U. S. WAR DEPARTMENT. SIGNAL CORPS. FORT MONMOUTH SIGNAL LABORATORY. Report on patch tests conducted at Fort Monmouth Signal Laboratory, March 1945. May 1945. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
The results of patch tests showed that a fungus proofing wire impregnating material with 1% phenylmercuric salicylate and even with 0.2% phenylmercuric salicylate is a powerful skin irritant, and that a lacquer with 1% phenylmercuric salicylate is also. The remaining chemicals showed no such powerful primary irritating properties.

PB 12371. WESCOE, W. C., and others. Studies on di-iso-propyl fluorophosphate and other cholinergic agents. (OWS Contract W-49-057-CWS 39. Bimonthly progress rept 1) Jan 1946. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
This is a brief report of studies made on cholinergic agents, including DFP, di-iso-propyl fluorophosphate. The structural formula for prostigmine reveals an analogy to the choline esters. Experiments have been carried out to investigate a possible common reaction to all such type compounds. Cholinesterase inhibition was also produced by therapeutic amounts of a synthetic choline ester, carbamylcholine in man. These observations have important clinical implications for the optimal use of prostigmine in myastheniagravis.

METALS AND METAL PRODUCTS

Belgian

PB 16921. COMBINED INTELLIGENCE OBJECTIVES SUB-COMMITTEE. Visit to steel cartridge case plant Fabrique Nationale d'Armes de Guerre, Herstal-lez-Liege, Belgium. (File XXXII-118, Item 2) 150 p. Price: Microfilm-$1.50 - Photostat-$10.00
Report of a visit to the F. N. plant at Liege to investigate the manufacture of 30 mm solid drawn steel cartridge cases. Fifty-one separate appendices present summaries of interviews, lists of personnel in Germany, test reports from the F. N. laboratory, diagrams and photographs of equipment, and discussions of steel and cartridge case manufacture. A list of operations of F. N. is included, with sketches of the pieces in different stages of working. F. N. analyses of 30 mm steel clank, P3-HK, P3-S, bonderizer A.20, bonderizer K. 20, granodine, grano-toner, "Warnicke" thinner, powdered wax, 7.9 mm. steel blanks, 7.9 mm. cups, and 7.9 mm. lacquered case are presented.

German

PB 16401. CONWAY, A. J. Heraeus Vacuumschmelze A. G., Hanau a/M, Grüner Weg 37. (BIOS evaluation Report 309) Jan 1946. 1 p. Price: Microfilm-50¢ - Photostat-$1.00
Chief item of information obtained from visit to this plant on Dec 21, 1945 concerns the method of production of "Einschmelz", an alloy for glass sealing in flash-lamp bulb manufacture. The melting process, hot rolling and cold working of the material are described.

PB 14533. FRYDAG, K. Blechverformung nach dem streckziehverfahren (Sheet shaping according to the stretch-draw method). (ALSOS Mission, Klotter File 11B) 1938. 10 p. Price: Microfilm - 50¢ - Photostat - $1.00
The described stretch-draw method for shaping sheet metal has been developed from the American Art: press by adding a system of flat pliers. Its principle is stretching and drawing a sheet of metal, which is held on both ends by the pliers, over a mold. This makes it possible to manufacture a comparatively limited number of parts on production basis. The article contains photos of the press and shaped pieces.

PB 19304. GEORGE, H. P. and others. Investigation of foreign automotive material, miscellaneous: Sixth report, Project 4/64. (Frankford Arsenal Ordnance Lab Rept R-585) Dec 1944. 28 p. Price: Microfilm-50¢ - Photostat-$2.00
This report is one of a series covering the results of an investigation to develop metallurgical data for a group of foreign automotive parts (see PB 19306 for Volkswagen (people' car), German; see PB 19307 for PzKw VI Tank, German). Photographs and results of tests, including chemical and spettrographic analyses, of the following parts of German and Japanese automotive vehicles are shown: Rocker arm assembly of a German 8-wheel armored car; a torsion bar of a German 3-ton personnel carrier; and valve, valve springs and piston ring of a Japanese jeep. Photographs and photomicrographs are included.

PB 19307. GEORGE, H. P. and others. Investigation of foreign automotive materiel PzKw VI Tank: Second report, Project 4/64. (Frankford Arsenal Ordnance Lab Rept R-581) Dec 1944. 159 p. Price: Microfilm-$2.00 - Photostat-$11.00
This report on the German PzKw VI Tank is one of a series covering the results of an investigation to develop metallurgical data for a group of foreign automotive parts (see PB 19306 for Volkswagen (people's car) German; see PB 19304 for Miscellaneous, German and Japanese). Photographs and results of tests, including chemical and spectrographic analyses, of the following main parts are shown: Valves, valve springs and piston assembly from Maybach engine, transmission gear, crankshaft, rocker arm shaft and assembly, camshaft, head casting, block casting, main shaft, sliding gear, etc.

PB 19306. GEORGE, H. P. and others. Investigation of foreign automotive material, Volkswagen, German: First report, Project 4/64. (Frankford Arsenal Ordnance Lab Rept R-580) Dec 1944. 94 p. Price: Microfilm-$1.00 - Photostat-$7.00
This report on the German volkswagen (people's car) is one of a series covering the results of an investigation to develop metallurgical data for a group of foreign automotive parts (see PB 19307 for PzKw VI Tank, German; see PB 19304 for Miscellaneous, German and Japanese). Photographs and photomicrographs and results of tests, including chemical and spectrographic analyses, of the following main parts are shown: Assembly and sub-assembly, axle shaft, crankshaft assembly, piston assembly, camshaft assembly, valves, valve springs, cylinder sleeve, reduction gear and spindle.

PB 14996. GERMANY. REICHSFORSCHUNGSRAT. Härtungsverfahren von Herrn Oberingenieur Kaatz für die herstellung von werkzeugen aus normalen baustählen (Hardening processes of Herr Kaatz for the manufacture of tools made of normal steels). (ALSOS Mission, Hoyt File 286) Dec 1944. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
Exchange of correspondence concerning a hardening process which its originator keeps secret. It seems to have stirred considerable interest in Germany which at that time was suffering a shortage of metals for hard steel alloys.

PB 18779. HENSEL, F. R. Rhenium. (FIAT Final Rept 697) Feb 1946. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Most of the new rhenium alloys were produced by Degussa Siebert Zweigniederlassun, Hanau, and are discussed in this report. Alloy A (60% rhenium, 15% nickel, 15% platinum or ruthenium, and 10% tungsten) is the most popular for penpoints. Other alloys used for this purpose are alloy B(90% rhenium, 6% tungsten, 3% tantalum, and 1% nickel or cobalt) and alloy C(75% rhenium, 25% platinum and 5% cobalt or nickel). Alloy D (95% platinum and 5% rhenium) was used for platinum base electrodes in electro-chemistry; and alloy E (3.5% rhodium, 5.4% rhenium and the balance platinum) was used for thermocouples in place of the standard platinum-rhodium alloy. The possible use of rhenium for catalysts was considered but no actual experiments were carried out.

PB 18791. HIPPLE, W. F. German experimental gas turbine wheel. (AAF ATSC Memo Rept TSEAL-4-M4607, Add 1). Oct 1945. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
A metallurgical examination was made of an experimental gas turbine wheel for a jet propulsion unit of German manufacture. The two materials used in the construction of this wheel revealed properties similar to those of wheels examined previously. The flash welding of buckets to the wheel was considered to be of good quality as was the closure weld. Photographs and microphotographs.

PB 16705. HUTTON, A. K. Miscellaneous information on materials for shipbuilding applications. (CIOS File XXXII-105, Items 21 & 29) Aug 1945. 12 p.
Price: Microfilm-50¢ - Photostat-$1.00
Certain miscellaneous information regarding materials - specifications, compositions, treatment, test data, and applications - was gathered from a number of sources and presented in this report. As the war progressed shortages developed in Germany of certain alloying elements, the most critical being nickel, molybdenum, tungsten, manganese, chromium and vanadium. Aluminum was more plentiful and certain light metal alloys were being used as substitutes. However, not many instances of light metal alloy substitutes were being used in shipbuilding applications. An application of light metal alloy to replace bronze in a capstan worm and gear was considered satisfactory. The alloy, Silumingamma, was also used for castings for a gas turbine air compressor for speed boats.

PB 14728. LANGE, HEINRICH. Uber den einfluss von erschutterungen auf den magnetischen zustand ferromagnetischer körper. (Concerning the influence of oscillatory fields on the magnetic condition of ferromagnetic bodies) (Kaiser Wilhelm Institut für eisenforschung) (ALSOS Mission, Hoyt File 123) May 1945. 3 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report comprises appendix 10 to the report on the work of the group dealing with vibrations, impulses and elastic waves (A. Eichinger, K. Fink, H. Lange, H. Titze.). It is a dissertation on magnetism and magnetic induction in metals. The accompaniments mentioned are not attached; however, the first one is issued as PB 14729.

PB 14729. LANGE, H. Uber den einfluss von erschütterungen auf den magnetisierungszustand ferromagnetischer körper; der magnetische zustand von fahrzeugen. (Concerning the influence of oscillatory fields on the condition of magnetization of ferromagnetic bodies; the magnetic condition of ships) (ALSOS Mission, Hoyt file 124) Mar 1942. 26 p. Price: Microfilm - 50¢ - Photostat - $2.00
This document is an enclosure to a short paper by H. Lange issued as PB 14728. It is a reprint from volume 53 of the papers of the German Academy of Aeronautical Research. The paper is concerned with magnetization in metals as induced 1. by striking while in the direction of the magnetic field of the earth, 2. by treatment in oscillatory fields and 3. by treatment in alternating fields. Curves illustrate the lecture and there is a discussion at the end.

PB 14742. MASING, G. Messung der mechanischen erholung (Measurement of mechanical recuperation) (ALSOS Mission, Hoyt File 7C) n.d. 5 p.
Price: Microfilm - 50¢ - Photostat - $1.00
This is the draft for an article that was to have been published and analizes the limits to which a body can be elastically stretched without structural changes. The author tries to obtain mathematical formulas on the recuperation of a metal band which was bent to a circle and slowly increased its radius. The study contains tabulations and diagrams. In German.

PB 14733. MÖLLER, H. and HEMPEL, M. Beziehungen zwischen werkstoffeigenschaften und kristallzustand (Relationship between the properties of metals and their state of crystallization) (ALSOS Mission, Hoyt File 22) May 1945. 4 p. Price: Microfilm - 50¢ - Photostat - $1.00
This manuscript report describes the changes in the internal structure of steel and their observation by the X-ray reflection method during tests on vibration stress resistance and bending stress resistance up to their limits. The conclusion is reached that the change in the lattice of crystals caused by these stresses is not in itself the cause of breaking but rather an accompanying phenomenon to other changes. The relationship of the lattice structure and internal tension in steel and its formation processes and heat treatment prior to the described X-ray reflection tests is also discussed. In German.

PB 14722. OELSEN, W. and WATTENKAMP, M. Chemische rückstandsuntersuchungen an stählen und Legierungen (Chemical analysis of residues steel and alloys). (ALSOS Mission, Hoyt File 114) May 1945. 6 p. Price: Microfilm - 50¢ - Photostat - $1.00
This manuscript report describes a method of determining the carbide, phosphide, oxide, niobide, tantalide and tetanide content of steel or its alloys on dissolving in (1) weak non-oxidizing acids and (2) cupro-ammonium chloride and analyzing the undissolved residue. The ratio of the original percentage of these compounds in steel and in the residue is tabulated. In German.

PB 14723. OELSEN, W. and PLOUM, H. Entwicklung analytischer verfahren, besonders bor (Development of analytical methods, especially for boron). (ALSOS Mission, Hoyt File 115) May 25,1945. 7 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report describes methods developed for the analyses of boron, cobalt, and nickel and the separation of titanium from aluminum. Also discussed is a volumetric determination of nitrogen in steel and a simplified method of determining arsenic. Work was carried on at the Kaiser Wilhelm Institut für Eisenforschung. Will reproduce very poorly.

PB 14720. OELSEN, W. and MAETZ, H. Untersuchungen über den hochofenprozess, laboratoriumsversuche und betriebsergebnisse; verhalten von S, Mn, Si, Cr, V, Ti, und P. (Investigation of the blast furnace process, laboratory experiments and practical resuls; behavior of S, Mn, Si, Cr, V, Ti and P.). (ALSOS Mission, Hoyt File 112)
May 1945. 15 p. Price: Microfilm - 50¢ - Photostat - $1.00
The described investigations were made with the purpose of following closely the blast furnace process in the laboratory in order to find the laws governing the reduction process and the complicated chemical reaction taking place in the furnace. The influence of the presence of Mn and Si on desulphurisation, and the role of such normal components of iron as Cr, V, Ti and P are discussed. Results are shown in graphs and a table. Will not reproduce well.

PB 14719. OELSEN W. and MAETZ, H. Zur metallurgie des phosphors (On the metallurgy of phosphorus). (ALSOS Mission, Hoyt File 111) May 1945. 27 p.
Price: Microfilm - 50¢ - Photostat - $2.00
This manuscript contains articles on the role of phosphorus in metallurgy, covering its function in the Thomas process, experiments in using alkalis in the Thomas process, the rapid dephosphorization of iron by $CaNa_2(CO_3)_2$, and alkali dephosphorization and desulphurization in high heat. Laboratory and pilot plant experiments are described. Two pages of graphs. May not reproduce well.

PB 14948. PETER, W. and HUPT, K. Das system eisen-uran (The iron-uranium system). (ALSOS Mission Hoyt File 134) May 1945. 3 p. Price: Microfilm - 50¢ - Photostat - $1.00
This manuscript reports on the preparation of iron-uranium and iron-uranium-carbon alloys with 0.13% to 74% uranium and some difficulties encountered in connection with the low uranium alloys.

PB 14947. PETER, W. Zusammenhang zwischen dauerstandfestigkeit und zustandsschaubild an den eisen-niobiegierungen und niobstahlen (Relationship between the bearing strength and the composition of iron-niobium alloys). (ALSOS Mission, Hoyt File 133) May 1945. 8 p.
Price: Microfilm - 50¢ - Photostat - $1.00
This manuscript deals with the dependence of bearing strength and other physical properties of iron-niobium and iron-niobium-carbon alloys on their composition and heat treatment.

PB 14537. PLEINES, W. Nietverbindungen im leichtmetallflugzeugbau. (Riveted joints in light-metal aircraft construction) (ALSOS Mission Klotter File 113)
May 1937. 24 p. Price: Microfilm - 50¢ - Photostat - $2.00
This report describes riveting practice as applied to aircraft built of aluminum and aluminum alloys, the type of rivets used, and modern riveting methods and machines. Also methods of protecting the surface of riveted structures are discussed. Graphs, drawings, and a bibliography are included.

PB 18936. POTVIN, R. Production of beryllia and beryllium at Degussa plants. (BIOS Final Rept 158, Item 21) Sep 1945. 22 p. Price: Microfilm-50¢ - Photostat-$2.00
The manufacturing of technical beryllium oxide, by sintering with calcium oxide, sulphatisation, iron removal, precipitation of the beryllium hydroxide and oxide and calcining the beryllium hydroxide is described; - also the production of pure beryllium chloride by chlorination and electrolytic reduction. The method of refining and casting and the fabrication of beryllium x-ray windows is also described. The appendices include information regarding the organization of the Deutsche Gold und Silber Scheideanstalt (Degussa) company, a list of the personnel interviewed; production 1938-1945; history of the company; chief personnel; brief description of its properties and plants, list of principal companies in which Degussa is directly or indirectly interested, and income account and consolidated balance sheet as of September 30, 1945.

PB 14751. PUZICHA, W. Bericht der fachsparte eisen und stahl über den fortschritt der von reichsforschungsrat geförderten arbeiten im zweiten halbjahr 1944 (Report of the iron and steel branch on progress made in research projects sponsored by the reichs-research-commission in the second half of 1944). (ALSOS Mission, Hoyt File 1)
May 1945. 6 p. Price: Microfilm - 50¢ - Photostat - $1.00
The report gives a brief description of the work and names of persons in charge of research projects relating to metallurgy and various kinds of steel testing. In German.

PB 18916. SCOTT, H. P. R. and others. Report on German steel foundries. (BIOS Final Rept 109 Item 21)
Aug 1945. 29 p. Price: Microfilm-50¢ - Photostat-$2.00
The method of change over from ordinary foundry products to meet the requirements for plate armor is discussed in this report of visits to sixteen steel foundries in and near the Rhur area in Germany in August 1945. Apart from the centrifugal plants, production methods were found to be similar to British practice. It was significant that practically all the foundries visited were developing cement-silica sand mixture for medium weight castings. Brief separate reports are given for each foundry visited and include details regarding location, physical condition, officials interviewed, output in peacetime and in wartime; information on products, general observations and conclusions.

PB 19276. TOUR, SAM. Casting methods for aluminum and aluminum alloy billets. (FIAT Final Rept 686)
Jan 1946. 17 p. Price: Microfilm-50¢ - Photostat-$2.00
Descriptions are given of methods used for melting and casting of aluminum and aluminum alloy billets and slabs for hot extrusions and hot rolling in the following plants in Germany: Felten and Gilluame, Carlswerk, Mühlheim near Cologne; Dürener Metallwerk A. G., at Düren; Rheinmetall-Borsig, at Grafenberg near Dusseldorf; Messingwerk-Unna A. G., Unna; Vereinigte Leichmetall Werke, Bonn; Aluminum GmbH, Rheinfelden; Aluminum Walzwerke Wutöschingen, GmbH, Wutöschingen, Baden; Aluminum Walzwerke GmbH, Singen; Wieland Werke, Vöhringen/Iller; Vereinigte Deutsche Metallgesellschaft, Hedderahelm. Drawings are included.

Italian

PB 18923. WEIGEL, M. P. and HERZER, R. W. Aluminum reduction plants in Italy. (BIOS Final Rept 126, Item 21) Jan 1946. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
The production of primary aluminum ingot in Italy is carried out in four separate works owned by Italian, Swiss and Canadian interests respectively. These plants and their rated production capacities are as follows: 1) Societa Dell'Aluminio Italiano (Canadian), at Borgofranco, 3000 m.t. per annum; 2) Societa Aluminio Veneto Anonima (Swiss), at Porto Marghera, 20,000 m.t. per annum; 3) Industria Nazionale Aluminio (Italian), at Mori, 14,000 m.t. per annum; and 4) Industria Nazionale Aluminio (Italian), at Bolzano, 16,000 m.t. per annum. Reports of these plants include general information, nature of operations, production data, war damage, productive capacity, and appraisal of technique.

Japanese

PB 16830. BROWN, S. W. Activities of the Research Institute for Light Metals for Aviation. Tokyo, Japan. (AAF Air Tech Intelligence Group Rept 6) Oct 1945.
6 p. Price: Microfilm-50¢ - Photostat-$1.00
Manufacture of alumina from aluminous shale and clay by a soda-lime process comprised most of the research of this Institute. Chemical formulas are given and a flow sheet of the soda-lime process is included. Questioning revealed that no work had been done to reduce magnesium bearing ores, and magnesium had not been used, even experimentally, for primary airplane structures, though it had some use for crankcases and for wheels.

PB 18482. GILLETT, H. W. Report to War Eastern Branch, Military Intelligence Service, War Department on Abstract of confidential report on nickel in Japan, Jul 1942. (OSRD Rept 760) Aug 1942. 21 p. Price: Microfilm-50¢ - Photostat-$2.00
This is an abstract of a confidential report on nickel supplies in Japan, substitutions used, and steel production. There is no information in the report on useful new alloys for armor or other uses and no useful information on substitutes for nickel steels. Japanese steel production is only slightly handicapped by the fact that her domestic production consists of low nickel "ferro". Japan has a reserve supply of pure nickel for making the 18:8 type of stainless steel for the chemical industry. The conclusion of the report is that the Japanese stock pile is sufficient to last one year. Principal users of nickel in Japan, location and capitalization of firms, estimated annual purchases, and chief products are listed in an appendix. Abstract of the confidential report on nickel in Japan was prepared by James A. Rabbitt of International Nickel, Inc. Comments by P. D. Merica, J. A. Rabbitt and H. W. Gillett on the consumption and probable life of stock piles of nickel in Japan also appear as appendices.

Dutch

PB 18924. WEIGEL, M. P. and others. The aluminum fabricating plant of Aluminium Wale-en-Persbedrijven N. V., Utrecht, Holland. (BIOS Final Rept 127, Item 31) Jan 1946. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
Construction of this plant was almost completed and in partial operation in September 1940 when it was seized by the Germans. They extended it considerably and operated it until September 1944 when the advance of the Allies compelled them to abandon it after disabling all major equipment and taking all supplies. The total production of aluminum sheet, extrusions, tubes, rods and wire in the first six months of 1944 was 1,539 tons. A description of the composition and production methods in making these products is included; also, a table showing the analytical composition of V.L.W. alloys and permissible tolerances is given. This is the only producer of this class of material in Holland and it is believed that when the missing items of equipment are restored, it should be able to go into production in a short time.

United States

PB 15883. ASORN, R. H. and STITT, J. R. Report on "Studies and investigations in connection with research needs in the field of welding ordnance steels". (OSRD Rept 479) Jan 1942. 29 p. Price: Microfilm-50¢ - Photostat-$2.00
Based upon a survey of the status of knowledge both published and unpublished in regard to the welding of ordnance steels and after contacts with 73 organizations, recommendations were made for NDRC research projects on a number of problems in this field. Each of these projects is outlined and suggestions are made for the location and personnel. The appendices include a discussion on the evaluation of weldability, a proposed welding research program of the Carter Oil Company, and a discussion of research on evaluation of weldability of steels by hardenability and bend test, proposed by Colonel Jenks to N. R. C. Advisory Committee on welding. This report was made under contract by Ohio State University Research Foundation.

PB 16483. ANDERSON, E. A. and others. Prevention of stress corrosion cracking of cartridge brass (OD-25): Progress report, Aug 15-Nov 15, 1942. (OSRD Rept 1088) Dec 1942. 37 p. Price: Microfilm-50¢ - Photostat-$3.00
This report of work carried on at the New Jersey Zinc Company (of Pennsylvania), presents results of experiments on the protection of cartridge brass, under externally applied stresses, by means of zinc and copper coatings. Ammonia stress cracking tests have been made on zinc, copper, and cronak treated zinc electrodeposits on cartridge brass. Some tests have been made on zinc coated brass having definite bared areas. The following conclusions are given: 1) Zinc coatings provide definite protection under the test conditions, and exert some degree of electro-chemical protection for the exposed surface of cartridge brass; and 2) copper coatings offer substantially less protection than zinc coatings. Tables, a diagram, and photographs are included. For other reports on this subject see PB 16476-16479, 16482, 16490.

PB 16482. ANDERSON, E. A. and others. Prevention of stress-corrosion cracking of cartridge brass by protective coatings or surface treatment (OD-25): Progress report, Nov 15, 1942-Feb 15, 1943. (OSRD Rept 1262) Mar 1943. 33 p. Price: Microfilm-50¢ - Photostat-$3.00
Investigations on the resistance of previously treated brass to corrosion under externally applied stresses in an air-ammonia-carbon dioxide-water vapor atmosphere are reported herein. The effects of applications of electrodeposits of zinc and copper, and of organic coatings, chemical treatments, and mechanical surface treatments were also studied. Based on the findings stated in the conclusion, only one clear cut procedure for preventing season cracking was developed, that is, the use of zinc electrodeposits, preferably Cronak treated. Tables and graphs are included in this 2nd progress report on this project by the New Jersey Zinc Company. For other reports on this subject see PB 16476-16479, 16483, 16490.

PB 16479. ANDERSON, E. A. and others. Prevention of stress-corrosion cracking of cartridge brass by protective coatings or surface treatment (OD-25): Progress report, Feb 15-May 15, 1943. (OSRD Rept 1440) May 1943. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
This report covers the results of powder corrosion tests on bare and zinc-coated cartridge cases; and on drawn zinc cans to determine the corrosion rate of zinc. It was concluded from the tests made that: (1) The protection afforded by zinc to brass in the ammonia stress cracking test is not dependent upon stress in the range 2000-24000 p.s.i.; and (2) pigmentation of urea formaldehyde with zinc sulfide produces a reproducible improvement in the protection afforded brass at discontinuities in the finish. This is the third progress report of work done by the New Jersey Zinc Company of Pennsylvania under contract with NDRC. For other reports on this subject see PB 16476-16478, 16482-3, 16490.

PB 16478. ANDERSON, E. A. Prevention of stress-corrosion cracking of cartridge brass by protection coatings or surface treatment (OD-25): Progress report, May 15-Aug 15, 1943. (OSRD Rept 1859) Sep 1943. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
This is the fourth progress report of experiments carried on at the New Jersey Zinc Company of Pennsylvania. Additional data are given on pigmented organic finishes and data on the first inspection period on powder corrosion tests of zinc cases are available. An experiment was under way in connection with the possibility of zinc plating fourth draw cases. No new major conclusions were drawn. For other reports on this subject see PB 16476-7, 16479, 16482-3, 16490.

PB 16477. ANDERSON, E. A. Prevention of stress-corrosion cracking of cartridge brass by protective coatings or surface treatment (OD-25): Progress report, Aug 15-Nov 15, 1943. (OSRD Rept 3006) Dec 1943. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
This fifth progress report of work carried on at the New Jersey Zinc Company, covers investigations of chemical finishes, zinc plating and organic coatings on cartridge brass, and includes data on the corrosion rate of zinc in contact with powders. The corrosion rate of zinc in contact with single and double base powders during a seven-month aging at 50°C. is small. The Cronak film has no effect on this corrosion rate. A wax material known as Puritan Cartridge Coating Compound affords as good protection to brass in the ammonia stress-cracking test as a 0.00025" zinc coating does. The loss in protection incurred by plating cartridge cases prior to final fabrication does not appear excessive in view of the simplification in plating effected by this procedure. For other reports on this subject see PB 16476, 16478-9, 16482-3, 16490.

PB 16476. ANDERSON, E. A. Prevention of stress-corrosion cracking of cartridge brass by protective coatings or surface treatment (OD-25): Final Report, Aug 15, 1942 - Feb 15, 1944. (OSRD Rept 3534) Apr 1944. 32 p.
Price: Microfilm-50¢ - Photostat-$3.00
This report presents the results of work carried on at the New Jersey Zinc Company to evaluate various coatings and surface treatments applied to brass cartridge cases to decrease the tendency for stress-corrosion cracking. Evaluation was largely accomplished by exposure of coated or treated brass specimens to an ammonia-carbon dioxide-water vapor atmosphere. A tensile stress was applied to the specimen by means of a weight. Tests were made with copper coatings, a variety of zinc coatings, pigmented and unpigmented organic coatings, chemical treatments and mechanical treatments. It was found that electroplated zinc coatings greatly retarded stress -corrosion and appear to offer the greatest promise for practical application. Copper coatings provided less protection than zinc. Organic coatings provided protection and, if pigmented with lead sulphide, zinc sulfide, or bismuth trisulfide, even gave protection at scratches. Quite thick coatings are needed for substantial protection, however, a substantial degree of protection was also obtained with a wax material known as Puritan Cartridge Coating Compound. For other reports on this subject on PB 16477- 16479, 16482-3, 16490.

PB 16490. ANDERSON, E. A. Prevention of stress-corrosion cracking of cartridge brass by protective coatings or surface treatment (OD-25): Final report, supp. (OSRD Rept 4253) Oct 1944. 5 p. Price: Microfilm-50¢ Photostat-$1.00
This supplementary report presents the results of powder exposure tests which were still under way at the New Jersey Zinc Company at the time the final report was issued. Unplated and zinc plated brass cartridge cases were filled with propellent powders, sealed, and aged (1) continuously at 50°C. and (2) intermittently 16 hours at 50°C. and 8 hours at 4.5°C for one year. The cases were then opened, the powder removed, and the empty cases shipped to Frankford Arsenal to be loaded, fired, and examined for external cracks. None were found, and no reasonable explanation has been developed for the failure of these cases to show cracks even when unprotected. For earlier reports on this project see PB 16476-16479, 16482-3.

PB 19790. AVERY, HOWARD S. Heat-resistant alloys for ordnance material and aircraft and naval engine parts (M-102): Final report; Part I, Heat-resistant alloys of the 21% Cr: 9% Ni type. (OSRD Rept 5263) Jun 1945. 51 p.
Price: Microfilm-$1.00 - Photostat-$4.00
Results of an investigation of the physical properties at elevated temperatures of commercially available alloys of the 21%Cr:9%Ni type to see if they may be substituted for the higher heat resisting alloy of the 26% Cr: 12% Ni grade, or in specialized applications arising out of the war. Creep tests, metallography, oxidation, relation of creep strength and magnetic permeability and thermal expansion characteristics are investigated. Alloys are recommended for service between 1200° and 1600°F because of their greater ductility, reduced susceptibility to embrittlement, substantially equivalent creep strength and lower cost. Bibliography of 7 items, tables, curves and photomicrographs are included. Study is financed by the American Brake Shoe Co.

PB 5585. BARTLETT, PAUL D. Report on "The corrosion of steel by 50% HS - 50% M-1 mixture" to Jun 13, 1942. (OSRD Rept 825) Aug 1942. 15 p. Price: Microfilm-50¢ - Photostat - $1.00
The purpose of this work was to investigate the problems of corrosion of shell steel by HS-M-1 mixtures and the simultaneous decomposition of the liquid mixture, and to alleviate these conditions, if excessive, by the addition of a substance or substances to the liquid charge. The statement of the problem excluded any pre-treatment of the steel surface to effect the desired results. This report shows that a 50-50 mixture of M-1 and HS is far more corrosive than either constituent alone. Some evidence that the two materials react with each other is presented. Substances which will inhibit the corrosiveness of this mixture have not been found. A theory to account for the corrosive action of this mixture is advanced. Two tables and a graph give results of the experiments.

PB 5586. BARTLETT, PAUL D. Report on "The corrosion of steel by 50% HS (TG) - 50% M-1 ($HgCl_2$) mixture" to Aug 6, 1942. (OSRD Rept 835) Aug 1942. 8 p.
Price: Microfilm - 50¢ - Photostat - $1.00
It has been suggested that the excessive corrosion rates and decomposition for the mixture over that for the separate constituents might be due to the interaction of M-1 with the "impurities" of HS, as trichlorodiethylsulfide or HS polysulfide. To determine if the "impurities" of HS were the cause of excessive corrosion and decomposition, corrosion tests have been made using pure HS, i.e. an HS (TG) - M-1 ($HgCl_2$) mixture and the data obtained are the subject of this report. The corrosion rate of M-1 content of the various runs are given in Table I along with the values previously obtained for comparison purposes. One graph shows pressure developed by HS-M-1 mixtures at 60°C.

PB 16230. BOHSE, A. Connectors coupling rings. (AAF ATSC Memo Rept ENG-54-656-1018) Jun 1944. 2 p. Price: Microfilm - 50¢ - Photostat - $1.00
Test to determine the ultimate strength in shear and tension of AN connector coupling rings made from stamped aluminum sheet, die cast aluminum, and machined from aluminum bar stock. Each fitting was tested to failure in a 20,000 pound Amsler hydraulic testing machine, adjusted to 10,000 pound capacity. Test loads were applied in tension first to the shoulder section and then to the threaded section until failure occurred. Results are given in tabular form in the appendix.

PB 18830. BURGESS, C. O. and BARLOW, T. E. Increased use of gray cast iron in high temperature operations. Final report, Jun 1943. (War Metallurgy Committee Advisory Rept W-29) July 1943. 39 p. Limited number available for free distribution, thereafter Microfilm-50¢ - Photostat-$3.00
The study reported herein was made by the National Academy of Sciences under contract with the War Production Board. A survey of the behavior of cast iron in elevated temperature applications was made by which detailed information on 233 commercial applications of cast iron at over 450°F. was obtained. The data show that within a temperature range of 450 to 1000°F. cast irons of controlled analysis can be successfully employed in numerous engineering applications. It was recommended that codes dealing with high temperature applications of cast iron be reviewed with the object of raising temperature limits in accordance with the demonstrated heat-resisting properties of existing grades of cast iron. Tables showing high temperature applications are included.

PB 18126. BURNS, J. R. Susceptibility of four magnesium casting alloys to microporosity and its effect on the mechanical properties. (AAF ATSC Tech Rept 5349) Nov 1945. 60 p. Price: Microfilm-$1.00 - Photostat-$4.00
Effect of microporosity on mechanical properties of magnesium alloys, H, C, AS, and AZ91. Rating on the 4 alloys in ultimate tensile strength and tensile yield strength vs. microporosity is H, C, AS, and AZ91 in descending order, whether in the as cast, solution heat treated or solution heat treated and aged state. Tables of data, porosity index curves, photographs and a bibliography of 7 items are included.

PB 16767. BUTTS, ALLISON and FRYE, J. H. Investigation of the effects of impurities on the ferro-magnetism of non-ferrous alloys (OD-156): Progress report, Jan 15-Apr 15, 1944. (OSRD Rept 3694) May 1944. 35 p. Price: Microfilm-50¢- Photostat-$3.00

This is a report of work conducted at Lehigh University in connection with the inaccurate functioning of instruments of a magnetic type constructed of copper alloys. Ferromagnetism in cast specimens of brass of Federal specification QQ-B-621, Composition B, was investigated for iron impurity contents. Susceptibilities and magnetic moments were measured on a large number of specimens and the values plotted against iron content. The magnetic properties of the specimens as cast rose rapidly when the iron content was increased above 0.2%. After annealing and quenching at 800°C., these properties remained very low up to 0.4% iron; and at 875°C. up to 0.7% iron. After re-heating to 500°C., sharp rise in magnetism took place above 0.55% iron. After re-heating to 650°C., the rise began just under 0.2% iron. Hardness, magnetic susceptibility, and magnetic moment of this alloy are strongly dependent on the amount of iron present as impurity and on heat treatment. The magnetic properties vary over an extremely great range. Diagrams, tables and graphs are included.

PB 16470. BUTTS, ALLISON and others. Investigation of the effects of impurities on the ferro-magnetism of non-ferrous alloys (OD-156): Progress report, Apr 15 - Jul 15, 1944. (OSRD Rept 4056) Aug 1944. 77 p. Price: Microfilm-$1.00 - Photostat-$5.00

This report presents the result of work conducted at Lehigh University on the investigation of the effect of iron impurity contents between 0.01% and 0.85% on the susceptibility and magnetic moments of one type of brass and two types of bronze. Curves were determined for 4 alloy conditions: (1) as cast; (2) heated at 800° or 875°C and quenched; (3) reheated to 500°C and slowly cooled; (4) reheated to 650°C and slowly cooled. The magnetic properties of the specimens as cast increased slowly with iron content up to about 0.4% Fe and rapidly thereafter. Quenching kept the magnetism very low to a point above 0.3% Fe for two of the alloys and 0.4% or more for the other, a sharp rise occurring at higher iron contents. A maximum iron content of 0.1% was tentatively adopted as safe for alloys to be used in magnetic instruments. A detailed comparison of the alloys is given. Numerous tables of results and graphs are included.

PB 16469. BUTTS, ALLISON and REIBER, P. L., JR. Investigation of the effects of impurities on the ferro-magnetism of non-ferrous alloys (OD-156): Progress report, Jul 15 - Oct 15, 1944. (OSRD Rept 4442) Dec 1944. 57 p. Price: Microfilm-$1.00 - Photostat-$4.00

Tests were conducted at Lehigh University to study the effect of iron impurity on the susceptibility and magnetic moments of a commercial bronze casting alloy and of a brass used for plates and sheets. Curves showing variation of magnetic susceptibility and of magnetic moment with iron content were determined in the as-cast condition, after a solution-quenching heat treatment, and after annealing at two different temperatures. These results are compared with those presented for one type of brass and two types of bronze in the previous progress report, OSRD Rept 4056, PB 16470. Tables and graphs are included.

PB 16468. BUTTS, ALLISON and REIBER, P. L., JR. Investigation of the effects of impurities on the ferro-magnetism of non-ferrous alloys (OD-156): Progress report, Oct 15, 1944-Jan 15, 1945. (OSRD Rept 4833) Mar 1945. 62 p. Price: Microfilm-$1.00 - Photostat-$5.00

This report presents the results of an investigation carried on at Lehigh University on the effect of iron impurity on the susceptibility and magnetic moments of a brass of relatively high zinc content and of a phosphor bronze. Both of these are used for plates, sheets, etc., and were studied in both cast and rolled conditions. The effect of heating both cast and rolled specimens to 800°C for 24 hours and quenching from that temperature, and the effect of annealing rolled specimens at 300°C and at 500°C were determined. Tables and graphs show the variation of the two magnetic properties named with iron content under each of the conditions specified above. Since not all of the data for the phosphor bronze were available, graphs are given only for the brass. A comparison of these rolling alloys with each other and with the average of four casting alloys is given. The magnetic properties of the rolling alloys are much higher than for the casting alloys except at extremely low iron contents. The properties rise to high values at lower iron contents. The effect of specimens of varying magnetic moments and susceptibilities in causing deflections of a transit compass needle was measured and graphs are given. Hardness measurements of the brass and the phosphor bronze are given for the different conditions and micrographs are shown of the brass containing the beta constituent.

PB 16425. BUTTS, ALLISON and REIBER, PAUL L., JR. Investigation of the effects of impurities on the ferro-magnetism of non-ferrous alloys (OD-156): Final report, Jan 15, 1944 - May 31, 1945. (OSRD Rept 5471) Aug 1945. 122 p. Price: Microfilm-$1.50 - Photostat-$9.00

This report presents the results of studies conducted at Lehigh University on the effect of iron impurity on the susceptibility and residual magnetic moments of ten copper-base alloys. Data were obtained on which specifications may be based for maximum iron content in alloys for the construction of instruments in which only weakly magnetic materials are permissable. Specifications ranging from 0.02 to 0.10% iron are indicated for different alloys. The effects of various conditions and factors that affect the relationship between magnetic properties and iron content were studied and information obtained bearing on the underlying causes of these effects. Tables, plotted curves, and a bibliography are included.

PB 16470. CLARK, D. S. and others. The influence of impact velocity on the tensile properties of four magnesium alloys and 24S aluminum alloy. (OSRD Rept 3256 NDRC Armor and Ordnance Rept A-249) Feb 1944. 30 p. Price: Microfilm-50¢ - Photostat-$2.00

The work described in this report was carried out by the California Institute of Technology. It presents results of further investigations of the influence of impact velocity on the tensile properties of metals and alloys. Part I presents the results of tests on four magnesium alloys. Part II presents the results of static and dynamic tensile tests on a 24S aluminum alloy. Photomicrographs, curves, and diagrams illustrate the text.

PB 15674. CUNNICK, P. C. and McDOWELL, J. K. Stress relief of welded joints (OD-34-3). Final report, Jan 15, 1944. (OSRD Rept 3406) Mar 1944. 35 p. Price: Microfilm-50¢ - Photostat-$3.00

This report presents data on the amount of residual stress remaining in five specimens of SAE 4130, NE8630, and three commercial high tensile low alloy steels which had been subjected to stress relief heat treatments at several different temperatures for various periods of time. Tables, graphs and photographs are included. An addenda entitled "Hygraph Instruction Manual" with two photographs showing a cord-lock mechanism mounted on the hygraph instrument is given. This aids in the accurate drawing of lines and curves. The stress relief treatments reported herein were carried on at Rock Island Arsenal.

PB 19764-19771. DAVIS, JAMES A. and others. An investigation of cast magnesium alloys and of the existing foundry techniques and practices. Progress reports No. 1-7 and Progress report 8 and final summary report. PB 19764-PB19771. Jun 1944-Sep 1945. Limited free distribution; thereafter, prices for microfilm and photostat copies as listed below:

PB no.	OPRD Rept no.	Date	Pages	Prices Microfilm	Photostat
PB 19764	W-113	Nov 1, 1943 - Mar 20, 1944	47 p.	$.50	$4.00
PB 19765	W-133	Mar 20, 1944 - May 20, 1944	47 p.	.50	4.00
PB 19766	W-166	May 20, 1944 - Aug 20, 1944	49 p.	.50	4.00
PB 19867	W-187	Aug 20, 1944 - Feb 1, 1945	129 p.	1.50	9.00
PB 19768	W-205	Feb 1, 1945 - May 15, 1945	31 p.	.50	2.00

PB 19769 W-228 May 15, 1945-
Jul 15, 1945 31 p. .50 3.00

PB 19770 W-229 Jul 1, 1945 -
Aug 1, 1945 63 p. 1.00 5.00

PB 19771 W-230 Sep 29, 1945 33 p. .50 3.00

This is a series of reports on work done at Battelle Memorial Institute from Nov 1, 1943 to Sep 29, 1945, under research contract WPB-136. The first part of the investigation covered by this project was concerned with the comparison of the two most popular American magnesium-base casting alloys, ASTM-4 and ASTM-17 with the two most popular European magnesium-base casting alloys, A-8 and AZ-91. These four alloys were compared in respect to their tensile properties, Charpy impact values at room temperature and at -75°F., tensile impact properties at room temperature and at -75°F., the endurance values in the R. R. Moore-type machine; their relative resistance to corrosion by cyclic immersion in a 3 percent salt bath; their relative amenability to heat treatment; their relative susceptibility to hot shortness in the foundry; their relative susceptibility to the formation of microporosity; the relationship of alloy composition to gas content of the melt, section thickness, and the degree of feeding provided to the microporosity which was formed in the castings; and the relative amenability of the four alloys to the new cleaning, degassing, and grain refining treatments developed on this project. The second part of the investigation dealt with the development of new methods of melt preparation whereby the melt could be economically and reliably degassed, cleaned, and subjected to a grain refining treatment after which it could be transferred directly to the mold or to a pouring ladle in an economical and satisfactory manner. Tables, drawings and photographs are included.

PB 18831. DIGGES, THOMAS G. and SANFORD, RAYMOND L. Decarburization of seamless tubing of NE-8630 steel: Final report. (OPRD Project 729 Res Rept W-192) May 1945. 64 p. Limited free distribution; thereafter, Microfilm-$1.00 - Photostat-$5.00

A study was made by the National Bureau of Standards the object of which was to make a survey of the existing methods for determining the decarburization of steel with special attention directed to the development of a nondestructive and quantitative method suitable and useful to the tubing industry and to determine the effects of decarburization on the tensile properties of seamless alloy steel tubing. The evaluation of decarburization by carbon analysis was considered to be the most accurate of the various methods investigated, but it is limited primarily to laboratory use. The evaluation of decarburization of seamless tubing microscopically appeared the method best suited for use commercially. An important feature brought out in the experiments was the absence of decarburization of many of the tubes received. Diagrams and photomicrographs included as well as tables of test data.

PB 15860. DOAN, G. E., and others. Evaluation of weldability by direct welding tests (OD-37-1): Final report April 15, 1943. Apr 1943. 48 p. Price: Microfilm-50¢ - Photostat-$4.00 OSRD 1427

This is a report of the second half of the program carried on at Lehigh University on weldability by direct welding tests. Secondary variables such as electrode size and composition, joints of unequal plate thickness etc., were investigated quantitatively for their possible influence on the accuracy of the prediction system proposed in the progress report of December 14, 1942 (PB 15888). A table of geometry factors for various combinations of plate thickness is included, and a method of predicting the hardness at the start of the weld and in the body of the weld is presented. Jominy bars of reduced diameter were tested to learn whether they can be used where the plate thickness is below one inch. Curves for the conversion of results from bars as small as 1/4 inch diameter to the standard one-inch bar have been developed by experiment and are presented here. Results of slow notch-bend tests are compared with results from heat-treated specimens. Typical Jominy and slow notch-bend tests are presented for 6 additional widely-used alloy steels. For earlier reports on this subject, see PB 15859 and 15888.

PB 19497. DORN, JOHN E. and BALLASIUS, A. C. Formability of magnesium alloy sheet (MA-146): Progress report, from Apr 11, 1943 to Jul 10, 1943. (OSRD Rept 1791) Sep 1943. 32 p. Price: Microfilm-50¢ - Photostat-$3.00

The tensile testing of Dowmetal J-1a and J-1h sheet 0.064 inches thick under various conditions of temperature and strain rate was carried on at the University of California in a study of the formability of magnesium alloy sheet. The resulting experimental data are evaluated and included herein. Some of the tentative conclusions reached are that for the J-1h alloy, strain rate has only a minor influence on the tensile strength at atmospheric temperatures; for J-1a alloy, the tensile strength in the longitudinal and transverse directions is similar for any given temperature in the 400°F. to 700°F. range; and at 400°F. the effect of strain rate on J-1a alloy is similar to the effect of J-1h alloy. Photographs and flow curves are included.

PB 19501. DORN, JOHN E. and THOMSEN, ERICH G. Formability of magnesium alloy sheet (MA-146): Final report, Part IV - Forming stretch flanges in the Guerin press, Apr 15, 1944. (OSRD Rept 3791) Jun 1944. 50 p. Price: Microfilm-50¢ - Photostat-$4.00

Tests made at the University of California on six types of magnesium alloy to determine the stretch flange forming limits at temperatures of 300° F., 400°F, and 450°F., are described in this report. The stretch flange formability of these alloys at the temperatures mentioned above was found to be ample for common aircraft requirements. Discussion of the following is included: The effect of temperature, die contour radius, and sheet thickness on maximum permissible percent stretch; the effect of temperature on formed flange heights; the geometry of forming stretch flanges; the pressure required for forming stretch flanges; and other related subjects. Photographs, curves showing the effect of temperature, contour diameter and other factors on the maximum stretch of the alloys and a bibliography are included.

PB 19500. DORN, JOHN E. and others. Formability of magnesium alloy sheet (MA-146) Final report, Part V, Forming shrink flanges on the Guerin press, Jun 14, 1944. (OSRD Rept 3940) Jul 1944. 56 p. Price: Microfilm-$1.00 - Photostat-$4.00

In tests carried out at the University of California, it was found that the improvement in shrink flange formability of various magnesium alloys, in which buckling gives the forming limit for segment lengths 8 inches or greater, is minor at forming temperatures up to 450°F. Considerable improvement was achieved, however, for room temperature and elevated temperature forming if cut outs were used and if the resulting segment lengths were made about 2 inches in length or shorter. The report of these tests includes description of the experimental procedure and results; a discussion of such forming defects as buckling of the flange, springback of formed flange, bend cracks, etc.; a bibliography; photographs and drawings; and curves showing the effect of various factors on permissible shrink. The appendices contain theoretical discussions regarding the pressure required for forming shrink flanges, the effect of die angle on the percent shrink, and the thickening of the flange.

PB 16768. DOWDELL, R. L. and others. Density volume changes associated with phase changes in cartridge brass (OD-117): Final Report, Jul 9, 1943-Mar 31, 1944. (OSRD Rept 3624) May 1944. 24 p. Price: Microfilm-50¢ - Photostat-$2.00

This report presents the results of an investigation of the effect of the beta-alpha transformation on the number of imperfections found in cartridge brass. Beta contained in unannealed strip brass for caliber .50 cartridge cases may be dissolved at 600°C; however, there is a strong tendency for a mixed grain size. There is usually a finer grain size in the central areas formerly containing beta than in the outside areas and evidence indicates there is a composition gradient inhibiting grain growth on annealing before cupping. In order to avoid ghosts and/or phantoms it is recommended that beta be eliminated by making use of a longer soaking

or annealing practice prior to rolling. X-ray diffraction photographs of cartridge brass samples, a diagram of the relative positions of the various lines in the patterns of α and β brass, a graph showing linear thermal expansion of cartridge brass, and tables are included.

PB 18472. DUWEZ, P. E. and others. The behavior of long beams under impact loading. (OSRD Rept 1828 NDRC Armor and Ordnance Rept A-216) Sep 1943. 63 p. Price: Microfilm-$1.00 - Photostat-$5.00
Part I presents the results of static and dynamic tests on beams of cold-rolled and hot-rolled low-carbon steel and annealed copper. These tests were made in order to check the theory presented in Part II. Deflection curves at the end of impact and after the beam has come to rest have been obtained. It has been shown that for materials such as low-carbon steel for which plastic deflection is localized, the observed deflection curve is closely approximated by considering the elastic behavior in the theoretical case. Two approximations of the moment-curvature curve are presented by which the deflection characteristics may be computed for certain cases. Part II contains a theory of the plastic deformation of an infinite beam that is subjected to a concentrated transverse impact of constant velocity. Plane cross sections of the beam are assumed to remain plane and the bending moment is assumed to depend on the curvature of the deflection curve, not to vary linearly as is the case for the elastic deformation but according to a function that is obtained from the stress-strain curve of the material. The theory neglects both the lateral displacement of the cross sections against each other due to the shearing force and the rotary kinetic energy of the motion of the beam. The experimental results which were obtained agree well enough with the theory and show that the simplifications made were justified. Tables, graphs. Work described herein was carried out by Carnegie Institute of Technology.

PB 18473. DUWEZ, P. E. and others. Discussion of energy measurements in tension impact tests at the California Institute of Technology. (OSRD Rept 1829. NDRC Armor and Ordnance Rept A-217) Sep 1943. 29 p. Price: Microfilm-50¢ - Photostat-$2.00
This report is submitted for the purpose of clarifying and justifying the manner in which ultimate strength and energy are measured under dynamic conditions in the Impact Testing Laboratory of California Institute of Technology. Evidence is presented to show (1) that the force-time diagram recorded at the fixed end of the specimen has the form predicted by theory; (2) that for most metals the energy given by theory; (2) that for most metals the energy given by a fixed-end dynamometer may be taken as reliable; (3) that in any case a correction may be applied such that the energy corresponding to the impulse measured at the fixed end of the specimen will not be in error by more than 10% and (4) that the experimental error in the measurement of energy as judged by reproducibility is not more than ± 10%. Diagrams, tables, and graphs.

PB 18468. DUWEZ, P. E. and others. Dynamic tests of the tensile properties of SAE 1020 steels, Armco iron and 17ST aluminum alloy. (OSRD Rept 1490 NDRC Armor and Ordnance Rept A-182) May 1943. 34 p. Price: Microfilm-50¢ - Photostat-$3.00
The work described in this report was carried out by the California Institute of Technology. It is a continuation of experiments directed toward an understanding of strain propagation in metals. The behavior of armor plate on impact of a projectile, of ship structures subjected to explosive forces, of aircraft landing gear, and so forth is dependent on such phenomena. Part I presents the results of an investigation of the influence of the variation in the ratio of length to diameter of a specimen on the determination of critical velocity. Part II discusses the dynamic tensile characteristics of a low-carbon steel in both the cold-rolled and annealed states. Part III deals with tension tests on both quenched and annealed Armco iron at impact velocities up to about 175 feet per second. Part IV presents the results of tests on 17ST aluminum alloy which show that the critical velocity is greater than 200 feet per second. Stress strain curves and velocity curves are included as well as photomicrographs and tables of data.

PB 18474. DUWEZ, P. E., and others. The influence of impact velocity on the tensile properties of class B armor plate, heat-treated alloy steels and stainless steel. (OSRD Rept 1641. NDRC Armor and Ordnance Rept A-195) Jul 1943. 63 p. Price: Microfilm-$1.00 - Photostat-$5.00
The work described in this report was carried out by the California Institute of Technology. Part I presents the results of tensile impact tests on two samples of heavy class B armor plate, one of which was said to have excellent ballistic properties while the other had average properties. Part II presents the results of static and dynamic tension tests on four heat-treated alloy steels. Two methods of heat-treatment were employed, namely, quenching and tempering, and austempering. Part III presents the results of static and dynamic tension tests on an 18-percent chromium, 8-percent nickel stainless steel. Results of tests are presented in tabular form. Photomicrographs, diagrams, and graphs illustrate the text.

PB 18471. DUWEZ, P. E. and others. Preliminary report on deflection and perforation of steel plates at impact velocities up to 150 FT/SEC. (OSRD Rept 1402. NDRC Armor and Ordnance Rept A-175) Apr 1943. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
The work described herein was carried out and reported by the Calfironia Institute of Technology. The results of preliminary static and dynamic deflection tests on plates of cold-rolled and hot-rolled low-carbon steel are described. The purpose of the investigation was to study the mechanism of perforations at velocities below 150 feet per second. This work is preliminary to the study of the mechanism of bullet perforation. While the velocities are very low compared with bullet velocities, these tests show a difference between static and low velocity piercing. The plates were loaded at the center with punches of three different shapes. The results show a marked decrease of deflection at velocities exceeding 100 feet per second in cold-rolled and hot-rolled plate. Diagram of plate-testing assembly and tables and graphs of data are presented.

PB 19498. FINCH, D. M. and others. Formability of magnesium alloy sheet (AZ-146) Final report, Part VII, Stretch forming magnesium alloys, Aug 5, 1944. (OSRD Rept 4171) Sep 1944. 118 p. Price: Microfilm-$1.50 - Photostat-$8.00
The maximum permissible limits for the stretch formability of six magnesium alloys were determined for a series of singly and doubly convex parts and also for a series of saddle-back parts. The maximum permissible stretch at 70°F. was small. At this temperature stretch forming was found to be limited to contours where the maximum contour line is only a few percent greater than the minimum contour line. The maximum permissible stretches were found to increase with increase in temperature over the range of temperatures investigated. At 300°F. to 400°F. high stretches were successfully obtained and severely contoured doubly convex and saddleback parts were easily fabricated. This report of tests conducted at the University of California describes the experimental equipment and technique and discusses the results and the uniform strain theory. The data obtained revealed that, contrary to prevalent opinion, the limits of stretch formability are not dependent upon the uniform strain as obtained in a tension specimen, but frequently exceed this value. Data serve as a guide for the design and tooling of stretch forming magnesium alloy sheet materials. Photographs, diagrams and curves showing percent stretch and percent shrink for magnesium sheets at various temperatures are included. Photographs of stretch presses and of types of failures are given.

PB 19792. GENSAMER, M. and others. Correlation of laboratory tests with full scale ship plate fracture tests (NS-336): Final report. (OSRD Rept 6204) Oct 1945. 54 p. Price: Microfilm-$1.00 - Photostat-$4.00
Report presents results obtained from impact and fracture studies of ship plate and the progress made in the attempt to duplicate, in scaled down tests with thin sheets, the

plastic behavior of ship plate. V-notch and keyhole Charpy tests were made over a range of temperatures in order to determine the temperature-energy absorption relationships for the 7 steels. Circular hydraulic bulge tests were made on pieces 2½" in diameter. Although in simple tension tests, the specimens possess properties identical to the full size plates, there is much greater deformation under bi-axial loading. Fractured plates from the S. S. Warrior exhibited conditions similar to those investigated. Tables, graphs and diagrams are included.

PB 16279. GRANT, D. Adel directional control valves - AN standard types. (AAF Eng Div ENG-51-M752, Add. 1) Aug 1943. 6 p. Price: Microfilm - 50¢ - Photostat $1.00
Tests on directional control valves from Adel Precision Products Corporation for pressure drop, operating moment, leakage, endurance and low temperature operation, in conformance with tentative specification AN-V-4. Valve was approved for A.N.A. use. It is recommended that the company investigate improvements in sealing the cam shafts when in motion and at low temperatures, and eliminate low temperature leakage at the valve cartridge plate.

PB 18978. GUESS, H. D. and LIBSCH, J. F. Induction heating - brazing applications: Part I, brazing carbide tips and inserts to tools and gages. (Springfield Armory Eng Dept Tech Rept 761-1st Partial) Oct 1944. 24 p. Price: Microfilm-50¢ - Photostat-$2.00
The object of the work covered by this report was to investigate specific applications of induction heating for brazing. It was found that high frequency induction heating is well adapted for brazing carbide tips and inserts to steel tools and gages in numerous applications. Compared with torch heating, brazing by induction is considerably faster, cleaner, more uniform and more readily reproducible. Transmite and hardwood have been most successful in fixtures for holding work within the coil, although better materials are desirable. Individual applications are presented and discussed in cases 16-22 which are appended. Photographs are included.

PB 15261. HERZFELD, K. F. and GRIFFING, VIRGINIA. Deduction of practical formulas for the stress in the mantle of a shell due to band pressure and powder-gas pressure. (NDRC Armor and Ordinance Rept A-281, OSRD Rept 3868) Jun 1944. 27 p. Price: Microfilm-50¢ - Photostat-$2.00
An attempt is made in this report to deduce formulas and calculate tables that permit calculation in a practical way of the stresses in a shell due to band pressure and powder-gas pressure. The band is seated in a notch; the effect of such a notch cannot, at present, be taken into account if one uses the formulas of the exact theory of elasticity. Therefore, improved approximation formulas, which have been presented in a recent memorandum, have been applied to this task. It is assumed that a uniform radial pressure due to the band is applied over the notch and a uniform radial pressure due to the powder gases is applied to the mantle of the shell behind the notch. In the boundary conditions at the shoulder of the notch, radial displacements and their axial derivatives are fitted exactly. This is not possible for the axial stresses; instead, the bending moments and their axial derivatives have been fitted approximately by using de St. Venant's principle. The final results are given in one formula for the critical stress according to the Mises-Hencky theory. Diagrams and a list of symbols are included.

PB 18810. HOSTETTER, H. E. Hardenability of steel. Second progress report, Jul 21, 1944. (War Metallurgy Committee Research Rept W-148) Oct 1944. 26 p. Price: Microfilm-50¢ - Photostat-$2.00
Report discusses methods of figuring the most economic composition for producing a desired hardenability, by utilizing the hardening elements present in scrap and selecting the cheapest alloy additions that are effective in increasing hardenability above the particular level supplied by the alloys in the scrap. Calculation of hardenability is based on the depth of penetration of martensitic hardening that shows 50% martensite. Only the three common hardening elements - chromium, molybdenum, and nickel - are dealt with. This is an original report of H. E. Hostetter of the Climax Molybdenum Company. An earlier report (PB18811) summarized information on available data by which hardenability may be approximately calculated from chemical composition.

PB 18843. HOYT, S. L. and others. Investigation on improving the welding quality of high-strength, low alloy steels. Progress report, Dec 15, 1942-Mar 15, 1943. (War Metallurgy Committee Res Rept W-20) Mar 1943. 44 p. Price: Limited free distribution; thereafter, microfilm-50¢ - Photostat-$3.00
This is the second progress report of an investigation carried out at Battelle Memorial Institute. The effect of structure was investigated by making a comparison of the relatively sensitive normalized SAE 4130 steel with material from the same heat made insensitive by spheroidization. The change of structure was found to have a pronounced effect on the temperature-dilation characteristics when using the rapid thermal cycle. Further work on the crack sensitivity test is also discussed in this report. A formula and table for calculating an index of crack sensitivity by comparison with a control steel and discussion of this index are included in the appendix. See PB 18841-18842, 18844-18846 for other progress reports on this same subject.

PB 18845. HOYT, S. L. and others. Investigation on improving the welding quality of high-strength, low alloy steels. Progress report, Jun 15-Dec 15, 1943. (War Metallurgy Committee Res Rept W-101) Apr 1944. 65 p. Price: Microfilm-$1.00 - Photostat-$5.00
This is the fourth progress report of an investigation carried out at Battelle Memorial Institute. A comparison of aluminum-treated with silicon-deoxidized SAE 4130 steel, after cold rolling, annealing, annealing and normalizing, showed the former to be much less crack sensitive. This improvement was obtained without any sacrifice in tensile properties. The addition of titanium together with aluminum reduced to a small extent the crack sensitivity, but at a sacrifice in tensile properties and hardenability. A study of three commercial heats of 1/8 inch NE 8630 steel revealed that manganese had a strong influence upon crack sensitivity. Graphs and photomicrographs included. See PB 18841-18844, PB 18846 for other progress reports on the same subject.

PB 18842. HOYT, S. L. and others. Investigation on improving the welding quality of high-strength, low alloy steels. Progress report, Dec 14, 1943. (War Metallurgy Committee Res Rept W-12) Feb 1943. 33 p. Price: Limited free distribution; thereafter, microfilm-50¢ - photostat-$3.00
This first report of work undertaken on this project at Battelle Memorial Institute was concerned primarily with the development of a weld test for measuring crack sensitivity and with the determination of differences between pairs of crack-sensitive and insensitive SAE 4130 steels. The single bead deposit test which was developed is described. Chemical analysis did not indicate that the chemical composition (heat analysis) was responsible for the wide variation in crack sensitivity. No correlation was found between the hardenability as determined by end quenching procedure and the tendency of the steels toward cracking. A marked difference in microstructure of certain of the crack sensitive and insensitive steels was noted. Tables, graphs and photomicrographs included. See PB 18841, PB 18843-18846 for other progress reports on this subject.

PB 18846. HOYT, S. L. and others. Investigation on improving the welding quality of high-strength, low alloy steels: Progress Rept, Dec 15, 1943-Jun 1, 1944. (War Metallurgy Committee Res Rept W-124) Jul 1944. 86 p. Price: Limited free distribution; thereafter, microfilm-$1.00 - photostat-$6.00

This is the fifth progress report of an investigation carried out at Battelle Memorial Institute. It presents discussion and results of a study of the effect of carefully controlled postheating conditions upon the extent of cracking and the hardness of the heat-affected zone in crack-sensitivity test specimens of steel alloys. The crack sensitivity and hardness data from these tests are presented in the form of time-temperature diagrams with contour lines connecting the various postheating cycles, which produce equivalent improvements in sensitivity, or result in the same hardness. This report includes abstracts of each of the four previous progress reports of this work (see PB 18842-PB 18845 and PB 18841 for Final report). Photomicrographs of typical martensite, troostite, and bainite structures after postheating at various temperatures and for various times are included as well as photographs of equipment.

PB 18841. HOYT, S. L. and others. Investigation on improving the welding quality of high-strength, low alloy steels. Final report, Jun 15, 1944. (War Metallurgy Committee Rss Rept W-127) Aug 1944. 166 p. Price: Microfilm-$2.00 - Photostat-$12.00
Summarizes and discusses the results of a study undertaken at the Battelle Memorial Institute under contract with the War Production Board, under the following headings: Crack sensitivity; cracking phenomenon in the sensitivity test; a comparison of sensitive and insensitive commercial SAE 4130 steels; the effect of structure and thermal history upon crack sensitivity; the effect of aluminum and titanium upon the crack sensitivity of SAE 4130 steel; the effect of aluminum additions, ranging from 1 to 6 pounds per ton, upon crack sensitivity; the effect of titanium and carbide size upon NE 8635 steel; crack-sensitivity study of three commercial heats of NE 8630 steel; effect of aluminum and sulphur contents upon the porosity of the weld bead and the crack sensitivity of the base metal; and an investigation of postheating. An article entitled "Determination of an Index of Crack Sensitivity," by George Moore is contained in the appendix. The report is accompanied by tables and graphs of data and photographs of equipment and specimens. For progress reports which give detailed information in regard to the above mentioned topics, see PB 18842-PB 18846.

PB 18826. HULTGREN, RALPH and MITCHELL, D. W. Control of grain structure and its effect on quality of magnesium alloy castings: Progress report, Dec 1, 1943 - Apr 15, 1944. (War Metallurgy Committee Res Rept W-109) Jun 1944. 17 p. Price: Microfilm-50¢ - Photostat-$2.00
Methods have been devised and tested by which magnesium could be melted, superheated, cooled to casting temperature, and cast under controlled conditions. A method for the determination of grain size is also described. Diagrams illustrate the mold furnace, the superheat and casting furnaces, and the method of grain counting; and a graph shows the effect of holding the alloy at casting temperature after superheating. This work was done under contract by the University of California.

PB 18824. HULTGREN, RALPH and others. Control of grain structure and its effect on quality of magnesium alloy castings: Progress report Apr 15 - Jul 15, 1944. (War Metallurgy Committee Res Rept, Serial W-135) Aug 1944. 27 p. Price: Microfilm-50¢ - Photostat-$2.00
Experiments on the effect of superheat temperature on A.S.T.M. No. 17 alloy were conducted at the University of California. Among the conclusions reached are the following: Grain refinement on superheating in one pound iron crucibles takes place at temperatures considerably lower than those of 1600° to 1700°F commonly employed; practically complete refinement takes place in 15 minutes at 1500°F, while one hour at 1400°F yields almost as fine grain sizes; and metal superheated in the small iron crucibles is 20-30% finer than that treated in the same way in one pound graphite crucibles. Experiments are suggested which would assist in determining the cause of the superheating effect. Graphs and diagrams are included.

PB 18825. HULTGREN, RALPH and others. Control of grain structure and its effect on quality of magnesium alloy castings: Final report, Dec 1, 1943 - Aug 31, 1944. (War Metallurgy Committee Res Rept, Serial W-147) Oct 1944. 52 p. Price: Microfilm-$1.00 - Photostat-$4.00
Report of experiments carried out at the University of California in refining the grain size of ASTM No. 17 alloy castings made from carbothermic magnesium produced by Permanente Metals Corporation. Results show that grain refinement occurs at considerably lower superheat temperatures than is reported in the literature for alloys made from electrolytic magnesium. Mechanical agitation, however, refines both carbothermic and electrolytic magnesium at a low temperature. Detailed descriptions of the experimental procedure and results are given, illustrated by diagrams, tables and photographs.

PB 16277. KUZMICK, JEROME F. and others. The effect of particle size of iron powder on the physical properties of the powder and of iron powder compacts. Final report. (OPRD Rept W-223) Sep 1945. 91 p. Limited number available for free distribution; thereafter, microfilm-$1.00 - photostat-$7.00
This report presents the results of a series of tests which were run to determine the effect of particle size on the physical properties of iron powders and compacts prepared therefrom by standard powder metallurgical techniques. Lots from four different makes of iron powder, two of the electrolytic type and two of the reduced type, were subdivided into fractions of increasing fineness by sieving and air classification. The tests were applied to the original powders as well as to their fractions. These tests showed that the particle size of iron powders has a significant effect on the following properties of the powders and powder compacts: Powders - apparent density, relative flow and weight loss in hydrogen; compacts - compressibility ratio, dimensional change on sintering and tensile strength. For one of the reduced type powders the tests were applied in such a manner that a statistical interpretation of the results could be made. Two appendices: (A) Separation and classification of subsieve particles of iron powders into the desired size fractions; and (B) conclusions on powder "A" as determined by statistical methods. Tables and graphs.

PB 15885. LORIG, C. H. and KLSEA, A. E. Effects of hydrogen, nitrogen and oxygen in armor plate (CD-38-2). Progress report, Jan. 5, 1943. (OSRD Rept 1233) Feb 1943. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
An evaluation of vacuum fusion methods of gas analysis in armor plate and an investigation of intergranular fracture in cast armor steel are covered in this report. The results of the oxygen analysis show that there is a rough relationship between oxygen content and the inclusion type in cast steels. An investigation of a peculiar fracture which followed the primary austenite grain boundaries of a cast steel led to the conclusion that this type of fracture resulted from the combined effects of a network of small holes around the grain boundaries coinciding with a network of a brittle transition product which followed the same pattern. Hydrogen relief treatment, repeated quenching, homogenizing and mild forging were four tests that were tried in an unsuccessful attempt to remove this type of fracture. Photograph of specimens are given. This research was done at the Battelle Memorial Institute.

PB 15843. LORIG, C. H. and others. Improvement of low alloy armor steels (CD-87): Part V. The effect of draw practice on the mechanical properties of six armor plate steels; Sep 19, 1943 - Feb 1944. (OSRD Rept 3423) Mar 1944. 41 p. Price: Microfilm-50¢ - Photostat-$3.00
This report of work conducted at Battelle Memorial Institute presents the results of determinations of the mechanical properties of six steels, three each of the nickel-chromium-molybdenum type and the manganese-molybdenum type, which were fully hardened and then drawn at various times at temperatures ranging from 800° to 1200°F. The results indicate that draw practice does not affect tensile strength, yield

point, elongation, or reduction of area except in so far as it simultaneously affects the hardness. Molybdenum contents of 0.40 per cent appeared to produce a slight but consistent increase in yield point, elongation, and reduction of area at any given hardness. Graphs and tables present results obtained.

PB 18975. McCAULEY METAL PRODUCTS, INC., BUFFALO, N. Y. Detailed description of method of manufacture: Production of steel cases, cartridge, 20 mm, M2A1B1. n. d. 36 p. Price: Microfilm-50¢ - Photostat-$3.00
The step-by-step procedure for the manufacture of steel cartridge cases by McCauley Metal Products Inc., of Buffalo, New York, is described in this publication. The composition of the steel used is carbon .34 - .34, maganese .55 - .85, phosphor max. .040, sulphur max. .045, and silicon .10. A flow sheet of operations, photographs and drawings illustrate the equipment and methods used.

PB 18768. MACCONOCHIE, A. F., and others. Advisory report on the mathematics underlying the centrifugal casting of metals (OD-108). (OSRD Rept 1809) Sep 1943. 44 p. Price: Microfilm-50¢ - Photostat-$3.00
Information is given regarding the mathematics underlying the mechanics of metal spinning, the determination of pressure on the mold wall, and other mathematical analyses of the relationships involved in the distribution of molten metals by centrifugal forces. This is a report of the War Metallurgy Division of the National Defense Research Committee. Charts and equations are included.

PB 12142. MIKLOWITZ, J. The propagation of the plastic zone along a tension bar of a material having a well-defined plastic limit. (NDRC Armor and Ordnance Rept A-280, OSRD Rept 3864). Jul 1944. 60 p. Price: Microfilm-$1.00 - Photostat-$4.00
This report contains the results of an investigation of the influences under which the plastic zone propagates along a tensile specimen of a material exhibiting a well-defined yield point. Specifically, the effects of the speed of stretching, the rigidity of the testing machine, and of the progressive yielding by one and two advancing plastic fronts have been studied. Nylon was the material tested. Although nylon and mild steel are structurally dissimilar, nylon behaves like mild steel from a mechanical viewpoint. There is also a discussion of the stress-strain relationship of nylon under bi-axial stress conditions. Diagrams and photographs, including those of a high-speed tension machine, illustrate the report. This work was carried out and reported by the Westinghouse Electric and Manufacturing Company.

PB 15863. MILLER, O. O. and others. Progress report on weldability of commercial armor plates (OD-36-2): Development of ferritic weld metal for repair of thick cast armor. Part I - Investigation of thirteen preliminary experimental weld metals. (OSRD Rept 6366) Dec 1945. 35 p. Price: Microfilm-50¢ - Photostat-$3.00
The thirteen weld metals investigated are, with one possible exception, too low in hardenability to "quench out" to 100% martensite at the center of 6-inch armor. Manganese appears to contribute strongly to the formation of an arrangement of ferrite and martensite denoted as Type I Widmanstätten Structure; chromium seems to promote an arrangement of ferrite and martensite denoted as Type II Widmanstätten Structure. A circular-shaped ferrite appears to be unnecessary for acceptable ballistic-shock quality of ferritic weld metals when austenitized, quenched, and tempered after welding. Tables, diagrams, and graphs present test data.

PB 16748. MOTT, W. S. and others. Experimental production of pilot static and centrifugal castings for the Armed Services: Part III, The fluidity of cast alloyed steels and irons. Final report, Jul 22, 1945. (OSRD Rept 5634) Sep 1945. 26 p. Price: Microfilm-50¢ -Photostat-$3.00
This report of work carried on at the American Brake Shoe Company, presents the results of a study of differences in the fluidity of various commercial grades of heat resisting alloys, and describes the development of an improved method for measuring fluidity by the cast-spiral technique. Use of this experimental procedure has demonstrated the dominant effect of liquidus temperature on fluidity. Foundry application of this principle in the production of H. R. A. grades and cast iron should aid in the reduction of scrapped castings due to cold shuts, miscruns, etc. Tables, graphs and photographs are included.

PB 16766. POCHAPSKY, T. E. and MASE, W. J. Damping capacity of heat-resisting metals for gas turbine parts (M-102). Progress report, Sep 1, 1943 - Mar 31, 1944. (OSRD Rept 3549) Apr 1944. 39 p. Price: Microfilm-50¢ - Photostat-$3.00
This is a report of work conducted at Battelle Memorial Institute covering determinations of the damping capacity at temperatures up to 1500°F of heat-resisting alloys. An optical method was used for making these measurements on forks of various heat-resisting alloys. The damping capacities of these metals were all found to be very low, being smallest for the strongest metals. The optical method is described and compared with the strain-gage method. Tables showing damping capacities of various alloys, temperature-decrement curves at various stresses, photograph of apparatus, and diagrams of method used are given.

PB 18827. PRAY, H. A. and others. Lead coating of steel by electrodeposit on and evaluation of quality of lead coatings: Progress report Jul 1 - Oct 1, 1943. (War Metallurgy Committee Res Rept W-65) Nov 1943. 24 p. Price: Microfilm-50¢ - Photostat-$2.00
Atmospheric corrosion tests conducted by Battelle Memorial Institute at Columbus, Ohio, although of insufficient duration to yield the maximum of information, show that at least 0.0005" of electroplated lead is probably required for reasonable life and that an undercoat of copper retards the initial appearance of rust. An extensive program of atmospheric exposure tests to determine the rate of atmospheric corrosion of electro-plated lead in the various atmospheres and in comparison with other metallic coatings is outlined. Exposure data are included in tables.

PB 18828. PRAY, H. A., and others. Lead coating of steel by electrodeposition and other methods, and evaluation of quality of lead coatings: Progress report, Oct 1, 1943 - Jan 1, 1944. (War Metallurgy Committee Res Rept W-92) Mar 1944. 39 p. Price: Microfilm-50¢ - Photostat-$3.00
This report describes procedure for atmosphere exposure tests of 600 lead coated 4 x 6-inch panels, and gives information regarding panels which had been exposed at Columbus, Ohio, for varying times. An initial series of specimens of lead plate directly on steel, exposed for one year, showed no significant difference between the fluoborate and sulfamate lead plates. Panels with 0.00025 inch of lead deteriorated to the extent that 50 to 75 per cent of the total surface rusted, whereas those with 0.0005 inch or more changed very little. A second series, exposed for seven months, indicates better performance of the 0.00025-inch plate in the presence of a copper flash of 0.000065-inch on the steel. Certain wax coatings on lead plate definitely improve the salt spray resistance. Uncoated lead plate was heavily rusted in less than 400 hours. Tables and photographs included.

PB 18829. PRAY, H. A., and others. Lead coating of steel by electrodeposition and other methods, and evaluation of quality of lead coatings: Final report, May 1944, including progress from Jan 1 - Feb 29, 1944. (War Metallurgy Committee Res Rept W-114) Jun 1944.
This report summarizes briefly the work done at Battelle Memorial Institute on this project, and describes in detail the salt-spray, humidity and porosity tests, experiments on the effect of cold reduction and of fusion on porosity, and the more recent data on atmospheric corrosion of lead coatings on steel. Additional data on supplemental wax treatments, photographs of electrographic porosity tests and tables of test data are included.

PB 18850. PRAY, H. A., and SLUNDER, C. J. Study of a modified chromic acid anodizing process for aluminum: Progress report, June 30, 1944. (War Metallurgy Committee Research Rept M-132) Jul 1944. 34 p. Price: Microfilm-50¢ - Photostat-$3.00
An investigation of the corrosive effect of chromic anodizing baths containing sulfate on steel cathodes indicates that corrosion is likely to occur both during electrolysis and under certain conditions also during idle periods. The possibility of protecting the steel by hanging antimonial-lead strips from the sides of the tank was tested, but solution-line pitting of the steel was not prevented by this. The variation in anode current densities obtainable at 40 volts in baths of different sulfate contents was also investigated.

PB 15868. RIEPPEL, P. J. and others. Development of improved electrode coatings (OD-36-2): Progress report, Jul 15, 1944 to Jan 15, 1945. (OSRD Rept 5101) May 1945. 108 p. Price: Microfilm - $1.50 - Photostat - $8.00
This second progress report describes and gives results of experimental work with various types of coated metal-arc welding electrodes and special hollow electrodes, conducted to obtain information on conditions incident to or associated with cracking adjacent to welds in hardenable alloy steel. The free and combined moisture content of various commercial and experimental coated electrodes, and the compositions of their arc atmospheres, were determined. Special hollow electrodes were used with synthesized arc atmospheres to determine the effects of various arc-atmospheres constituents upon the arc and upon underbead cracking, and conversely to determine the effects of the arc upon these gases. Appendices contain: A discussion of the apparatus used, with diagrams and photographs; tables of test data; a summary of operating characteristics of experimental electrodes; and underbead-cracking test specimens.

PB 15867. RIEPPEL, P. J. and others. Development of improved electrode coatings (OD-36-2): Part I - Fundamentals of weld-metal porosity. Final report, Jan 15, 1945 to Oct 31, 1945. (OSRD Rept 6549) Jan 1946. 112 p. Price: Microfilm - $1.50 - Photostat - $8.00
This report covers work done at Battelle Memorial Institute and presents the results of experimental investigations of the basic causes of weld metal porosity produced during arc welding. The experiments described included welding tests using coated electrodes in controlled atmospheres of various combinations of hydrogen, carbon monoxide, carbon dioxide, air, helium, and argon. In general, results indicated that weld-metal porosity, produced with the commercial ferritic armor-welding electrodes and the experimental NRC-2A type electrodes used, is closely related to the water content of their coatings and to the presence of hydrogen or nitrogen in the arc atmosphere. Similar tests were made with bare rimmed-steel electrodes and with special experimental electrodes. Tables, charts, photographs, radiographs, diagrams of equipment, and a bibliography are included.

PB 17645. STEINOUR, HAROLD H. Particle size distribution of iron powders for powder metallurgy and separation of iron powders into various particle size fractions: Second progress report. Jul 1944. 21 p. Price: Limited free distribution; thereafter, Microfilm - 50¢ - Photostat - $2.00
Size analyses by a modified Wagner turbidimeter method have been made of five of the six iron powders that are being studied in this project. Auxiliary tests made in connection with these analyses include determination solution of mineral oil and kerosene that was used as the sedimentation medium; (b) the absolute densities of the iron powders; and (c) the percentage residues left by the iron powders on the 325-mesh sieve (after wet sieving). Particle size analyses are reported but are not regarded as final since modification of technique will eventually be tried. Particle size separations were to be undertaken next. Tables present data of tests conducted by Armour Research Foundation under contract with the Office of Production Research and Development of WPB. For earlier and later reports see PB 17644, 17646, 17647, and 16277.

PB 17646. STEINOUR, HAROLD H. Particle size distribution of iron powders for powder metallurgy and separation of iron powders into various particle size fractions: Third progress report. Sep 1944. 17 p. Price: Limited free distribution; thereafter, Microfilm - 50¢ - Photostat - $2.00
This is a report of work conducted by Armour Research Foundation under contract with OPRD, WPB. Five different iron powders have been separated by air elutriation into portions having various fineneeses. Division points were at particle diameters of about 40 and 60 microns, and, in one case, 20 microns. Since the required air velocities caused turbulence, the points at which separations were made could not be calculated accurately from Stokes' law. Some differences in the behaviors of the various powders were noted with respect to the sizes of particles that could be lifted at the maximum attainable air velocity. For earlier and later reports see PB 17644-17645, PB 17647 and PB 16277.

PB 17647. STEINOUR, HAROLD H. Particle size distribution of iron powders for powder metallurgy and separation of iron powders into various particle size fractions: Fourth and final report. Oct 1944. 50 p. Price: Limited free distribution; thereafter, Microfilm - 50¢ - Photostat - $4.00
Iron powders of limited particle size ranges have been analyzed for particle size distribution by means of the Wagner turbidimeter. The analyses of the original iron powders and of computed recombinations have been compared and are found, in general, to be in reasonable agreement. However, one powder gave significantly less consistent results than the others. A critical discussion of the turbidimeter method is given. The simple air-permeability method of determining specific surface has been tried with all six of the original iron powders, and is believed to have practical possibilities with respect to all of them. Work was conducted by Armour Research Foundation under contract with OPRD, WPB. For other reports on this subject see PB 17644-17646, and PB 16277.

PB 19499. THOMSEN, ERICH G. and others. Formability of magnesium alloy sheet (MA-146): Final report, Part VI, Forming beads on the Guerin press, Jul 1, 1944. (OSRD Rept 4042) Aug 1944. 38 p. Price: Microfilm-50¢ - Photostat-$3.00
This is a report of tests made at the University of California which were designed to furnish information on forming limits for internal atmospheric beads for six magnesium alloy sheet materials up to forming temperature of 450°F. It was found that under all conditions which were investigated the atmospheric internal beads fractured at or near the point of tangency of the circular portion of the bead contour and the die bead radius. At the point of tangency local deformation was consistently observed for all test conditions. Because of the relatively good formability of magnesium alloy external beads at a forming temperature of 70°F., the present study on external beads was confined to 70°F. Included are descriptions of external and internal beading and of the dies used; discussion of the geometry of an internal bead, uniform strain under combined stress, and pressure required to form an internal atmospheric bead. Diagrams, photographs and graphs are given.

PB 15878. TROIANO, ALEXANDER R. Investigation of the metallographic and physical properties of new types of gun steels (OD-34-3): Progress report, Apr 15, 1943. (OSRD Rept 1433) May 1943. 34 p. Price: Microfilm-50¢ - Photostat-$3.00

This report of work undertaken at the University of Notre Dame describes the results obtained in an investigation designed to develop a test method which would predict the proper tempering temperature for both 40 and 75 mm. gun tubes. The results of more than fifty tests in forged specimens are listed and analyzed, and in addition preliminary tests on cast specimens are considered. The necessary equipment and the procedure for the performance of the test are described. All results with forged specimens indicate that this test can be successfully applied to production control of tempering. Preliminary tests on cast specimens gave equal, if not greater, promise of success. Tables, diagrams, and graphs are included.

PB 15866. VOLDRICH, C. B. and others. Development of improved electrode coatings (OD-36-2): Part II, Development of alternating-current welding electrodes for high-strength structural use. Final Report, May 15, 1945 to Oct 31, 1945. (OSRD Rept 6550) Jan 1946. 30 p. Price: Microfilm - 50¢ - Photostat - $2.00
An investigation was made at Battelle Memorial Institute to develop alternating-current welding electrodes for use in high-strength structural work. After studying welding characteristics of various electrodes with different coating types, the experimenters chose a carbonate-cryolite-titania coatingas having the best over-all operating characteristics. Strength test and stress-relief tests were made on experimental and commercial direct-current electrodes, and results presented in tabular form. This investigation has developed electrodes which deposit weld metals with compositions meeting both yield point range requirements and having moderate ductilities. It is felt that these weld-metal compositions can be used commercially, although considerable work is still needed on improvement of the electrodes' welding characteristics. Diagrams showing the plate setup for groove weld, and the sequence of stringer beads in single-vee butt welds are included.

METEOROLOGY AND CLIMATOLOGY

PB 14651. BOCCIUS, W. Wind und seegang (Wind and sea motion). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik I D 1). (ALSOS Mission, Klotter File 11A) Sept 1937. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
The report discusses the relationship between wind and waves. The wave components, such as strength and motion are analyzed. The velocity and the dynamic pressures of various wind strengths are tabulated. The relationship between wind velocity and the corresponding wave characteristics is also observed. Formulas, graphs, bibliography. In German.

PB 15611. HOUSE, HUNTER and others. Fog-dispersal recommendations for the island of Shemya. Dec 1944. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
A report of a series of investigations regarding the heat requirements and most effective burner location for the dispersal of fog over the southeast landing strip on the island of Shemya in the Aleutians. A continuous hourly record was plotted for wind direction, wind speed, fog intensity, temperature, dew point, visibility, and ceiling for the four months, June through September. A statistical analysis was then made of wind direction, wind speed, and duration of heavy fog, as shown graphically. These investigations were carried out by the Iowa Institute of Hydraulic Research at the Bureau of Aeronautics of the Navy Department.

PB 18140. SALBACH, C. K. Summary of investigation of German meteorology targets. (U. S. Strategic Air Forces in Europe. Non-Tech. Intelligence Rept E-14) May 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
Report of visits to meteorology stations in the Munich and Salzburg areas in May 1945, giving information regarding the buildings, equipment, personnel, and particular function of each station. The names and locations of the stations and some of the more important information obtained is as follows: (a) German Weather Central (ZWO), formerly located at Wildpark, near Berlin, had been moved to the New-Biberg Airfield, near Munich about March 1, 1945. Considerable equipment was found but no records. (b) Luftgau Weather Central, of the Munich area collected data and issued forecasts for the surrounding area. It was stated by an employee that data had been received by teleprinter from secret locations, including reports from America, Canada, Iceland, England and an Atlantic analysis. (c) Salzburg Airfield Weather Station, which had been thoroughly ransacked. (d) Ainring Airfield. (f) Hohenpeissenberg Weather Station and experimental station on a prominent hill SE of Munich was found virtually intact. Experiments on atmospheric electricity and on radar were conducted there. (g) Lt. Col. Wilhelm Ortmeyer, in charge of Luftwaffe weather personnel, was interrogated at P/W Camp 22 near Regensburg. He gave information regarding the organization of the German Weather Central, movements of personnel, teletype lines, etc. (h) Deisenhafen Y-Service center for monitoring radio messages and decrypting them, at Uber-Hocking, south of Munich where everything was destroyed.

PB 18721. U. S. ARMY AIR FORCES. AIR WEATHER SERVICE. Tail winds on polar routes from Oahu, Hawaii to Cairo, Egypt in June and July. (Rept 1019) Mar 1946. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
A report on the number of days a tail wind of 10 knots or more may be expected during June and July on the 2 routes: Oahu over Alaska and the North Pole to Foggia, Italy and Cairo (2) from Oahu over Alaska and the North Pole to Iceland, London, Foggia and Cairo. Daily weather situations from 1934 to 1937 were examined and a computation made. The Iceland route is somewhat more advantageous than the direct route, but favorable tail winds are usually accompanied by cloudy, rainy weather. Sources of data are given, but no data are included in this report. On the average, one or two days per month will have tail winds of 10 knots or more.

PB 18722 U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Reims (France). (General Climatic Information Guide 133) Mar 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
The area covered by this guide is Reims, a city situated on the right bank of the Vesle River, which forms the Aisne-Marne Canal. The somewhat higher country of the Montagne de Reims with elevations up to 1000 feet is located to the south and southwest of the city. Higher mountains which shelter Reims from continental influences lie to the east, and an open pathway from the Atlantic Ocean and the English Channel lies to the west. Topographic and soil conditions are shown on accompanying maps. Temperature at dew point, frequency of temperature levels, monthly precipitation amounts, number of days with precipitation, precipitation spells, number of days with snow cover, mean number of clear and cloudy days, days with low ceilings and visibilities, and wind frequency distribution, are shown on accompanying graphs. Military implications of climatic conditions are tabulated under the following headings: Military factor, weather factor, months of most frequent occurrence, and months of least frequent occurrence.

PB 18723. U. S. ARMY AIR FORCES. WEATHER DIVISION. Mean freezing level contours of Burma; Coastal fog data. (Rept 582.) Mar 1944. 12 p. Price: Microfilm-50¢ Photostat-$1.00
Consultation of topographical maps and mean freezing-level contour data indicates that land elevations above the mean freezing level are limited, during all months, to an extremely rugged section of northern Burma, where numerous areas are in the range of elevation of 10,000 to 20,000 feet above sea level. This section is shown by cross-hatching in maps 1-4. Tables 1 and 2 show diurnal variation of temperature for Chittagong and Rangoon, while diurnal variation of relative humidity is given in tables 3 and 4. Table 5 shows mean number of days per month on which fog

occurred, and number of years of record on which the frequency figures are based. Table 6 is a tabulation of visibility code figures associated with each recorded case of fog during 1938 and 1939. A key to the visibility code is a part of this table.

PB 18716. U. S. ARMY AIR FORCES. WEATHER INFORMATION BRANCH. Climate and weather of southeastern Asia. Part II. Farther India and the Netherlands East Indies. n.d. 154 p. Price: Microfilm-$2.00 - Photostat-$11.00
This report discusses the weather and climate of Thailand, Indo-China, the Malay Peninsula, the Andaman Islands and The Netherlands East Indies. Full treatment is given of climatic influences, the monsoon regime, upper air circulation, storms, regional and seasonal distribution and variation of cloudiness, ceilings, fog, visibility, precipitation and temperature. Tables and charts of data and statistics on various meteorological elements, maps of prevailing surface and upper air winds, and source material are included.

PB 18799. U. S. ARMY AIR FORCES. WEATHER INFORMATION BRANCH. Short range forecast verification program (and supplement I, dated Jun 1944). (Rept 602) 46 p. Price: Microfilm-50¢ - Photostat-$4.00
The purposes, benefits and scoring procedure of the AAF method of verification of field forecasts are explained in this report. This system takes into account the negative ease or difficulty of each forecast by considering the probabilities of occurrence, and relates these probabilities to prediction and actual observation by means of a scale to measure the difference. The resultant scores for forecasts are combined to produce a total score from which the relative skill of each forecaster may be ascertained by comparison with scores of other forecasters. A supplement discusses results and revisions based on six months operation of program. Statistical tables, a copy of forecast form and charts are included.

PB 18724. U. S. ARMY AIR FORCES. WEATHER INFORMATION BRANCH. Study of length of record needed to obtain satisfactory climatic summaries for various meteorological elements. (Rept 568) Nov 1943. 19 p. Price: Microfilm-50¢ - Photostat-$2.00
The purpose of this study was to establish the number of years that are needed in order to obtain a relatively constant frequency distribution of various meteorological elements. In the limited amount of time available for this study, it was not possible to choose and study stations representing all the possible climatic regions of the world, but Table 1 showing stations and data will convey as far as possible the length of the approximate shortest records which will permit reliable deductions. The elements subjected to statistical analysis were those which had not been studied previously by climatologists with regard to the significant levels obtained by varying length of record. This study extends knowledge with respect to the elements significant for military aviation, such as: Horizontal visibility, cloud heights, cloudiness, persistence of rain spells, and wind velocity (surface). Tables and graphs are included.

PB 16910. U. S. ARMY AIR FORCES. WEATHER INFORMATION SERVICE. Preliminary oceanographic report on the northwest coast of Africa (Cape Spartel to Dakar). (Rept 178, revised) May 1943. 106 p. Price: Microfilm-$1.50 - Photostat-$8.00
This report consists of a general oceanographic discussion of the surface coastal water and shore characters of the coast of north west Africa from Cape Spartel to Dakar. The first chapter is a general description of the coast. Other chapters deal with tides and currents, temperatures and salinites, weather, and the state of the sea. Maps show soundings in fathoms. Tables give characteristic features of the tide and curves show large and small tides. There are maps showing surface currents, surface temperature, surface salinity, frequency of wind direction, depressions in the ocean. Graphs showing state of waves are also included.

PB 18630. U. S. ARMY AIR FORCES. WEATHER INFORMATION SERVICE. Tidal-current atlas for the region of the North Sea, the English Channel, and British waters. (Vol VII, No. 2) Feb 1943. 50 p. Price: Microfilm-50¢ - Photostat-$4.00
This atlas, compiled by the Deutsche Seewarte and published in Berlin in 1936 has been translated for AAF use. Information previous to 1936 is presented on tides and currents. Tables give detailed data on the direction and velocity of tidal currents from hour to hour in terms of mean solar time. There is an explanation of the tables and sample problems illustrate their use. Ocean current maps are included and show conditions for spring tides for the six hours before and after the transit of the moon at Greenwich (G.C.T.).

PB 18718. U. S. ARMY AIR FORCES. WEATHER INFORMATION BRANCH. The weather and climate of Formosa. (Rept 581) Nov 1943. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
The climate of Formosa may be characterized as subtropical. The weather is generally suitable for aerial operations at all seasons everywhere on the island except the northeast side. Low ceilings and poor visibility occur chiefly during the intense summer showers, and in the northeast monsoon air as it moves up the steep mountain slopes on the eastern side of the island. Detailed tables give average temperature and precipitation, number of clear and cloudy days, number of days with thunderstorms, gales and precipitation, and prevailing direction and velocity of surface winds. A list of seven stations with their locations and elevations are given. Maps of Formosa showing topography, location of stations and other weather conditions are included.

PB 18719. U. S. ARMY AIR FORCES. WEATHER INFORMATION BRANCH. The weather and climate of Hokkaido. (Rept 479) Nov 1943. 24 p. Price: Microfilm-50¢ - Photostat-$2.00
The weather and climate of Hokkaido are analyzed under the following sections: Major and local weather controls, ocean currents, synoptic conditions during the four seasons, and flying weather. Typical seasonal synoptic maps, graphs, illustrating average conditions of cloudiness, precipitation and resultant surface wind direction are included. Detailed tables of average temperature, precipitation, snowfall and cloudiness, and frequencies of fog, gales, thunder storms, and surface winds are also found in this report. Data are given in tabular and chart form.

PB 18717. U. S. ARMY AIR FORCES. WEATHER INFORMATION BRANCH. Weather conditions affecting the target area of Indo-China, Thailand, Burma, Malay states and occupied southern China. (Rept 473) Nov 1943. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
In the winter season over the target area, there is a pronounced northeasterly flow, the northeast monsoon, which is controlled by an extensive polar anticyclone over Siberia. Renewed polar outbreaks from the Siberian anticyclone, with the associated trailing cold fronts, occur on the average every 10 to 14 days. These cold fronts intensify off the China coast. The distinguishing feature of winter in southern China, by comparison with the rest of China, is the mild temperature. The mean temperature of the coldest month is not much below 60°F., which is comparable with Florida during the same season. In the Gulf of Tonkin and the Hainan Strait, fog, low stratus, and drizzle are prevalent during the Orachin period, from February to April. The period from February to April is the hot, dry season in Thailand, southwestern French Indo-China, Burma, northern Malaya, and over the Gulf of Siam. During October and the first half of November, the east and west coasts of the Malay Peninsula are affected by cyclonic storms in the southeast portion of the Bay of Bengal and by typhoons from the China Sea. The coastline most commonly exposed to typhoons is that bordering the Gulf of Tonkin and extending eastward and northeastward from it. Thailand is not affected by them. Maps and vertical cross sections of atmosphere are included.

ORDNANCE AND ACCESSORIES

French

PB 18019. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured foreign materiel: French blasting machine, EB Reg. 7007 and 7008. Jan 1945. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
Two blasting machines manufactured by different companies were examined. The machine (French designation, exploseur) measures 4" x 4" x 6" and is constructed of wood. The electric current is supplied by a generator which is rotated by vigorously pulling the cord attached to a pulley on the generator shaft. The ten cap blasting machine is the U.S. equivalent. Photographs are included.

German

PB 15432, 15433, 15434. CRANZ, C. A translation of Cranz's textbook of ballistics (Lehrbuch der ballistik, von C. Cranz) Vol II, Parts 1 and 2: Interior ballistics, the motion of the projectile through the barrel and attendant phenomena; Vol III, Part 1: Experimental ballistics, or theory of methods of measurement, observations and recording in ballistics. Based on a translation by C. C. Bramble and Henry Bluestone; revised and edited by J. D. Elder and Duane Roller. PB 15432-15434. 1944-45. PB 15432, 187 p. Microfilm-$2.00 - Photostat-$14.00; PB 15433, 189 p., Microfilm-$2.00 - Photostat-$13.00; PB 15434, 173 p. Microfilm-$2.00 - Photostat-$12.00
This translation of the above named volumes, originally published in Berlin in 1926, was edited and published by the NDRC Technical Reports Section for Armor and Ordnance. Volume II (PB 15432 and 15433) deals with interior ballistics and the sources of energy capable of giving modern projectiles their controlled trajectory over long range. The special problem of interior ballistics consists in finding, in any particular case, the gas pressure prevailing in the bore of the gun barrel, the acceleration and velocity of the projectile, and, finally, the temperature of the powder gases, each as a function of the time or of the displacement of the projectile in the barrel. With this main problem are connected other problems, relating to such matters as heating of the barrel, stresses on the barrel and the gun carriage, and methods of measurement in interior ballistics. PB 15432 contains the following chapters: I. Thermochemical and thermodynamic foundations; II. The constants of explosive substances; III. Experimental methods for determining pressure, critical remarks; IV. Nature and rate of transformation of explosives; V. Mechanics of explosions, mechanical effects of explosions on the surroundings. There are also 33 photographs concerned with the mechanics of explosions, and a 10-page bibliography. PB 15433 continues with the following chapters: VI. Theoretical approach to the solution of the principal problem of interior ballistics; VII. First group of approximate solutions of the principal problem of interior ballistics; VIII. Second group of approximate solutions; IX. Motion of the projectile through the barrel, taking into account the rotation of the projectile in the rifling; X. Recoil and recoil force, rocket effect; XI. Concerning explosive projectiles. The report also contains references and remarks, and name and subject indexes for volume II. PB 15434 contains the first part of volume III of the Cranz work. (Translation of the second part is in process.) This volume deals with the theory of measurement, observation, and recording in ballistics. The following topics are discussed: I. Mathematical and physical accessory apparatus; II. Measurement of velocities and of short times of flight of projectiles; III. Measurement of longer time intervals - total time of flight of a projectile; burning time of primers and ordinary fuses; running time of mechanical fuses; IV. Tests of the accuracy of the most commonly used ballistic chronographs; V. On aiming and aiming devices; VI. Determination of the quadrant angle of departure, the angle of jump and the angle of fall; and VII. Measurement of heat of explosion, flame temperature, burning time, and specific volume of a powder. The report is concluded with references and remarks. All three reports contain numerous tables and diagrams.

PB 18164. DEYSDALE, T. Noball (Crossbow) Site. (AAF Tech Intelligence Rept E-10) Feb 1946. 1 p. Price: Microfilm-50¢ - Photostat-$1.00
Information from a French civilian on the launching site for flying bombs, located in a forest near Fourcarmont. Flying bombs of the V-1 type had to be preheated before launching. If this did not occur, the bomb fell to earth.

PB 18166. DUNBAR, H. A. and THOMAS, E. J. Inspection of V-2 Sub-assembly plant. (AAF Tech Intelligence Rept E-13) Oct 1944. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Interrogation of manager of Luxembourg plant manufacturing a part of the V-2 rocket. He believes there are 4 compartments: a warhead, tank compartment, Gerust 4200, and rocket propulsion unit. Two pictures of the Gerust 4200 part which is a scaffold arrangement and a sketch map of the underground assembly plant at Mittlewerke, near Nordhausen are appended.

PB 18159. GETTE, J. O., JR. Modified ski sites. (AAF Tech Intelligence Rept E-5) Jul 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Investigation of camouflaged modified ski sites to be used for launching rockets against England. It is believed that mobile units, carrying with them the superstructure for the launching ramp, fuel, electrical equipment and in the pilotless aircraft, could arrive at any site and make it operational in a short time. Plan of site and 8 small photographs are included.

PB 14994. LEGAT, A. Schmieden und vergüten von 2 cm flakrohren (Forging and annealing of 2 cm antiaircraft gun barrels). (ALSOS Mission, Boyt File 286) 1944. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This folder contains correspondence in regard to a simplified process of forging and annealing barrels for 2 cm antiaircraft guns. Both the standard and improved methods are described.

PB 18731. RHEINMETALL-BORSIG A. G., BERLIN. Verfahren zum einbringen getrennter munition in ein geschützrohr (Procedure for loading unassembled munitions in a gun). German patent application R103458 XI/72d. n. d. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
This document has been located by FIAT. There is described the loading of guns using divided portion of ammunition which during the process of loading form a cartridge from the component parts. All pages are not available and of those available not all can be read. The pages are partially carbonized and will not reproduce well. The figures which should accompany the patent are lacking.

PB 18162. THOMPSON, C. E., and DUNBAR, J. A. Inspection of BOBALL (Crossbow) Ski Site. (AAF Tech Intelligence Rept E-8) Jul 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Description of almost completed flying bomb site, describing minutely the layout of the various buildings. Although extensively camouflaged, this site had been bombed, to the destruction of the launching ramps. Two plans of the buildings and layout are included.

PB 15625. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured foreign materiel. German time delay clock igniter. (Reg 2867) Jun 1945. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
The igniter has external dimensions of 6" length and 3-9/16" diameter across the bolt lugs. The device operates, as follows: The lead-sealed cord is unfastened; the luminous pointer is set at the desired delay time on the luminous dial face; the safety pin is pulled out; the dial pointer handle is then pulled up releasing the square stud connected to the clock mainspring, and starting the clockworks. When the delay time has elapsed, the lever is moved by a lug on the main clock gear, and activates a second spring gear system. This in turn rotates the plastic gear, permitting the two firing pin detent balls to be released through two holes in the side of the plastic gear, and firing the device. Photographs are included.

PB 11476. U.S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Engineer Board letter report: German blasting machine. (Rep. 2222). Mar 3, 1945. 3 p. Price: Microfilm - 50¢ - Photostat - $1.00
Brief description of a captured German blasting machine. Comparable United States equipment is the 10-cap blasting machine. In actual test the German machine fired a maximum of fifteen electric caps connected in series. One photograph.

Japanese

PB 18733. NELSON, ROBERT S. Japanese ordnance equipment: Japanese aircraft cannon (experimental). (U. S. Army Tech Intelligence Center, Tokyo, Rept 138) Jan 1946. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes six Japanese aircraft cannon (HO 204, 37 mm; HO 155, 30 mm; HO 51, 25 mm; HO 12, 20 mm; HO 3057, 57 mm; and HO 3157, 57 mm). These are experimental models ordered to be designed for the Japanese Army Air Forces by a Japanese Civilian Laboratory. Most of the models had not been completed at the end of hostilities. However, the weapons had been thrown into an abandoned well and covered with earth. Photographs and a table of characteristics are included.

PB 18643. U. S. ARMY TECHNICAL INTELLIGENCE CENTER, TOKIO. Japanese ordnance equipment: Japanese A. A. type 2 director. (Rept 133) Dec 1945. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes models 1, 2, and 3 of the Japanese type 2 AA director. Photographs and a schematic drawing are included.

PB 18653. U. S. ARMY TECHNICAL INTELLIGENCE CENTER, TOKYO. Japanese ordnance equipment: Japanese 8 mm submachine gun type 2 (Experimental) (Rept 112) Dec 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
The Japanese 8 mm submachine gun, type 2, is a straight blowback, magazine fed, semi or full automatic weapon. Its unusual feature is the air lock buffer and cyclic rate changer system. Photographs and a list of characteristics are included.

PB 18654. U. S. ARMY TECHNICAL INTELLIGENCE CENTER, TOKYO. Japanese ordnance equipment: Japanese rifle, type 38, 7, 7 mm. (Rept 108) Dec 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
The Japanese rifle, type 38, 7.7 mm is in the experimental stage, and has not been used in the field. Photographs of the weapon supplement the list of characteristics given in this report.

PB 18652. U. S. ARMY TECHNICAL INTELLIGENCE CENTER, TOKYO. Japanese ordnance equipment: Japanese rocket launcher. (Rept 113) Dec 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Two new rocket launchers were discovered at the Japanese Army Technical Laboratory No. 1 at Kokubunji. Both the 74 mm rocket launcher and the 94 mm rocket launcher are intended for firing small calibre rockets. This report is intended to cover only the launchers with some added information on the type of rockets and the firing procedure. Photographs.

PB 18641. NELSON, ROBERT S. Japanese ordnance equipment: Japanese type 3 (Modified) 6.5mm heavy machine gun. (Rept 128) Dec 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
This subject machine gun is an improvement over the Type 3, Hotchkiss design, heavy machine gun as there are no cooling fins, and the weapon is designed for speedier removal of the barrel. Photographs are missing.

PB 18655. U. S. ARMY TECHNICAL INTELLIGENCE CENTER, TOKYO. Japanese ordnance equipment: Japanese type 4, 75 mm A. A. gun. (Rept 129) Dec 1945. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
Photographs illustrate this description of the K Japanese type 4, 75 mm A. A. gun, a mobile antiaircraft weapon. A list of specifications is also included.

PB 18642. U. S. ARMY TECHNICAL INTELLIGENCE CENTER, TOKYO. Japanese ordnance equipment: Trends of Japanese Army A. A. director development. (Rept 134) Dec 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
The Japanese Army began as early as 1922 to use AA directors in fire control. They have always used linear-speed computation in heavy caliber gun directors; the Navy has used angular rate directors as well. Because of the inability to manufacture intricate and delicate apparatus in large quantity, most of these directors might be termed drum-matching computing devices. The Type 97 director is the only one comparable to U. S. standards.

United States

PB 16048. ADAMS, J. R. Test of bomb, incendiary, 500-lb., E22. (CWS TDMR 816) Mar 1944. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
This is an evaluation of the E22 which proved the bomb unsatisfactory. Six photographs illustrate the fragmentation caused by the bomb.

PB 16039. ADAMS, J. R. and DAIGER, W. H. Test of bomb, incendiary, 500 lb., E22 (modified). (CWS TDMR 968) Jan 1945. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
This is a report of tests made in the evaluation of the E22 (modified) bomb of the six bombs dropped, five impacted on the ground and fired and one impacted on the prototype building and fired. All tended to flash badly. Attached are photographs and drawing.

PB 14480. BAUER, W. H. and BARNARD, H. Incendiary oil, solid and viscous: firing behavior and Gardner consistencies of napalm type fillings for the M-69 bomb. (CWS Tech Div Memo Rept 694) Aug 1943. 25 p. Price: Microfilm-50¢ - Photostat-$2.00
Tests are described from which it is concluded that target delivery and distribution for Napalm-gasoline fillings in the M-69 bomb may be predicted from the Gardner Mobilometer consistencies of the fillings. Figure 1 is a drawing of the pendulum and target and figure 2 of the burning rate equipment, all of which were used as firing equipment. Figure 3 is a graph showing the rate of burning.

PB 16041. BOLGIANO, R. E. Development of 4.5-in. incendiary rocket E13R2 (Navy MK. 9) (CWS TDMR 911) Nov 1944. 45 p. Price: Microfilm-50¢ - Photostat-$3.00
This report sets forth the tests which modified the existing 4.5-inch rocket heads and developed a new type igniter resulting in the E13R2 rocket. Tests on ground and inflammable target show that this rocket has sufficient gel dispersion and ease of ignition to be effective. Enclosed are photographs and drawings.

PB 15766. CARSON, JAMES S. Red phosphorus incendiary bomb M1 (leaf). (CWS TDMR 484) Dec 1942. 24 p. Price: Microfilm-50¢ - Photostat-$2.00
A series of tests on this bomb are described and tabulated from which it is concluded that the bomb is not satisfactory because of chemical sensitivity instability and lack of sufficient impact to meet the desired requirements. Certain other conclusions are made respecting the bomb container E2 and the delay air burst fuse, Fuze Igniting, M10A1 (Mod.) Drawings accompany the report.

PB 15765. CARSON, JAMES S. WP incendiary bomb, M 2 (leaf). (CWS TDMR 482) Dec 1942. 28 p. Price: Microfilm-50¢ - Photostat-$2.00
Tests showed the M2 bomb to be satisfactory as a delayed type incendiary for grain fields or light constructed materials. It is dependent on temperature and intensity of sunshine for ignition. The bomb container E2 was shown to be satisfactory as was the delay air burst fuze M10A1 mod. Appendix A is a report from the Plastic Division of the Celanese Corporation, entitled "Delay action fire leaves." Appendix B contains drawings.

PB 17242. DAIGER, W. H. The prototype target building, Edgewood Arsenal, Md. (CWS TDMR 978) Feb 1945. 30 p. Price: Microfilm-50¢ - Photostat-$2.00
This report gives a complete description of the target building erected on M Field, Edgewood Arsenal for the evaluation of large incendiary bombs. Attached are photographs, drawings and a list of reference drawings and specifications.

PB 16055. DAIGER, W. H. Test of the 500 lb. magnesium incendiary bomb, E12. (CWS TDMR 1049) May 1945. 61 p. Price: Microfilm-$1.00 - Photostat-$5.00
This report describes the testing of various models of the 500 lb. incendiary bomb, E12, all magnesium casing, developed by the Permanent Metals Corporation. From the tests described it is concluded that the bomb will withstand rough handling and that the burster AN-M13 and igniter AN-M9 (WP filled) are satisfactory for use with the munition. Appended are tables, photographs and drawings.

PB 3093. DEUCHLER, L. T. Detailed report on Development Contract W 33-019 ORD-88 for 105 mm. M14E1 steel cartridge case with Mullins Manufacturing Corporation. Apr 1944. 70 p. Price: Microfilm-$1.00 - Photostat-$5.00
This report covers the development of a 105 mm steel cartridge case at the Salem and Warren plants of Mullins Manufacturing Corporation. The purpose of this work was to develop a steel cartridge case by starting with bar stock, hot forging or upsetting it into a shape approximating the conventional third draw piece including a flat base with metal near the edge to later form a flange. After forging, the piece was to be slow-cooled, or annealed if necessary, pickled and machined all over the outside of the sidewall to give a uniform wall thickness. It was then to be finished by two cold drawing operations with an annealing between them, headed, tapered, mouth annealed, stress relieved and painted to meet specifications. Part I is a description of processing, tool difficulties encountered, analyses of steel used, annealing times, temperatures, etc. At the end of Part I is an operation sheet giving each operation in some detail in its proper sequence. Part II consists of tool and die drawings, drawings of case sections, hardness distribution sketches, tensile curves, photographs and micrographs.

PB 17216. DRISKELL, J. C. and others. Colored smokes, colored smoke trail bombs E13, E13R1 and E13R2. (CWS TDMR 861) 1944. 23 p. Price: Microfilm-50¢ - Photostat-$2.00
The object was to develop a bomb which, when released from an airplane, would give a stream of colored smoke suitable as a signal between aircraft. The use of hand grenade containers filled with colored smoke mixtures as a means of introducing colored smokes into bomb bodies, was found to be most satisfactory. Pelleted smoke mixtures, solid pressed canisters, and canisters with holes in the smoke mixture were unsatisfactory. An ignition fuze was designed that would give positive ignition and the desired delay. Tables and photographs are given.

PB 16045. ELKINS, H. B. and WEAVER, A. B. 105 mm. base ejection shell, WP-filled. (CWS TDMR 837) May 1944. 14 p. Price: Microfilm-50¢ - Photostat-$1.00
This is a report on the tests to develop a WP (white phosphorus) filling to replace the HC (hexachloroethane) filling. Enclosed are a sketch of the canister for the shell and a photograph.

PB 16057. ELTON, ROBERT W. Grenade, hand smoke M15, special filling. (CWS TDMR 1037) Apr 1945. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
This report records experiments made to develop fillings other than WP (white phosphorus) intended to produce a screen of longer duration and with greater anti-personnel effect. From the tests described it is recommended that the filling for the grenade be confined to white phosphorus until a more suitable and efficient filling can be found.

PB 16059. ESCOTT, GARNEY. Development of napalm flame thrower fuels for use in tropical climates. (CWS TDMR 1035) Apr 1945. 19 p. Price: Microfilm-50¢ Photostat-$2.00
This report describes the work done in connection with the determination of a suitable mix (or group of mixes) to give optimum performance in flame throwers and, at the same time, retain its consistency for a reasonable length of time under tropical conditions. The conclusion is that with attention to the proportions of ingredients, the temperature, and the control of moisture, napalm fuels may be mixed with uniform results and optimum performance.

PB 16176. FRANZ, W. G. and MCCANNE, J. F. Test of first production lot of AN-M69 incendiary bombs (Kilgore Manufacturing Co.). (CWS Tech Div Memo Rept 1097) Jul 1945. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
The production lot tested was found unsatisfactory due to excessive malfunctioning. Most of the causes of malfunctioning, other than non-ignition of the gel, can be corrected by more rigid inspection and supervision at the point of manufacture.

PB 16171. GILBERT, J. E. Development of grenade, incendiary, AN-M14. (CWS TDMR 1114) Aug 1945. 46 p. Price: Microfilm-50¢ - Photostat-$4.00
The object of the work described was to develop an incendiary grenade, using such components of the HC Smoke Grenade, M8, as were practicable. Work covered body and fuze adapter, filling and loading procedures, and water-proofing and surveillance.

PB 3062. GORHAM MANUFACTURING CO., PROVIDENCE, R. I. 40 mm Steel Cartridge Case Manufacturing Procedure. Jan 1944. 84 p. Price: Microfilm-$1.00 - Photostat-$6.00
This report presents a list showing the sequence of manufacturing operations and equipment used in them. This is followed by a description of each operation with accompanying drawings and photographs. A drawing showing the layout of the shell department is also given.

PB 17307. GOTTLIEB, BENJAMIN M. and GORDON SYLVAN B. Dry filling of munitions with WP: 8" T21 and 240 mm. T6. (CWS Tech Div Memo Rept 948.) Dec 1944. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
A method has been developed and equipment designed and constructed which will accomplish the filling of these shells with WP (white phosphorus). Data sheets attached show the calibration of the shells; there is also a schematic diagram of equipment for the dry filling of WP.

PB 6257. GREENE, L. W. An investigation of materials suitable for the production of screening smokes. (Edgewood Arsenal Tech Rept 42) Apr 1933 57 p. Price: Microfilm-$1.00 - Photostat-$4.00

The object of this investigation was to determine the suitability of various smoke agents for dispersion from aircraft and to find a cheaper substitute for titanium tetrachloride (FM). The results obtained are consolidated into a comprehensive table. One substitute for FM suitable for training purposes is a mixture of 65% FM and 35% ethylene dichloride. Other agent and combinations are discussed.

PB 18974. HAMILTON, W. C. Summary of work on cast steel shells, contract W-672-ORD-A243. Feb 1943. 32 p. Price: Microfilm-50¢ - Photostat-$3.00
This is a summary of work by the American Steel Foundries toward development of satisfactory cast steel shell bodies for high explosive bodies. Consultations were held with Campbell, Wyant and Cannon Foundry Company which was at that time in production on 60 mm. cast steel trench mortar shells. Using Campbell, Wyant and Cannon's experience, experiments were carried out to develop a satisfactory gating and risering method for 3" high explosive anti-aircraft shells. Under the terms of the contract Campbell, Wyant and Cannon was designated as a sub-contractor, and by mutual agreement American Steel Foundation was to do the development work on the 3" and 105 mm. shells, while Campbell, Wyant and Cannon worked on the 155 mm. shells. The 8 sketches in Series A attached to the report show the methods of gating and risering tried in the course of the development. A description of each of the methods and the general results obtained when the castings were sectioned and deep etched are given. The sketches in Series B also give the details of molding and gating experimental castings.

PB 15846. HILDORF, W. G. and others. Control of basic open hearth practice in manufacture of wrought gun tubes. (OD-34-3) May 1 - Jul 1943. 50 p. Price: Microfilm-50¢ - Photostat-$4.00 OSRD 1972
This report covers a correlation of all features of melting practice with the properties of the finished product for almost 150 heats of gun steel for both 40 mm and 75 mm guns. It also shows the beginning of a rather clear-cut correlation between the size, distribution, and quantity of inclusions and the transverse reduction of area as well as occurrence of bore defects in the finished guns. Tables, graphs, and charts are included in this progress report under NDRC Contract with the Timken Roller Bearing Company.

PB 16053. HURST, T. L. Tests of 100-gal. mechanical smoke generators Devilbiss and Besler. (CWS TDMR 826) Apr 1944. 48 p. Price: Microfilm-50¢ - Photostat-$4.00
This memorandum report describes the tests for mechanical reliability and weaknesses of the E7. DeVilbiss SCL 501, and the Besler Model 317 mechanical smoke generators, both rated at approximately 100 gallons per hour fog oil consumption. Suggestion as to methods of improvement to correct weakness and increase operational reliability are presented. Furthermore, results of comparison of the above two units with the M1 mechanical smoke generator are set forth. Appended are photographs of the generators in action and drawings of the coil assembly, piping, and temperature control valve and indicator of the Besler generator.

PB 15767. HUSS, HARRY O. Installation tests of E16R1 airplane spray tank mounted in the B-17, B-24, B-25 and B-26 airplanes. (CWS TDMR 485) Dec 1942. 45 p. Price: Microfilm-50¢ - Photostat-$3.00
The object of these tests was to determine the best installation of the E16R1 tank in the listed planes, to obtain the minimum amount of contamination of the airplane, universality of discharge lines and satisfactory drop size and chemical dispersion. The results, including changes in the B-24 and B-26, and conclusions are given. Drawings and photographs illustrate the installations.

PB 18982. KALISTA, G. Endurance firing and heat tests of a one-piece molded plywood handguard for the M1 rifle. (Springfield Armory Eng Dept Tech Rept WO-373) Sep 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
The object of these tests was to determine whether or not the subject guard will close about the operating rod tube or shift on the barrel during firing. The guard was heat-tested on a rifle fired in five 200-round groups with the result that the guard closed in at the sections where there were no supporting metal ribs. The guard was endurance fired an additional 6000 rounds without loosening and shifting on the barrel. Some modifications for improvement of the guard assembly indicated by the above firing include proper spacing of the supporting ribs and securing of the front ferrule. Photograph and table show the results of test.

PB 16154. KOVITZ, JULIUS. Development of 75-MM base ejection incendiary shell, T-34. (CWS Tech Div Memo Rept 1190) Dec 1945. 16 p. Price: Microfilm-50¢ - Photostat-$1.00
The results of the investigation were that the shell was satisfactory when fired at muzzle velocities of 1000 feet per second but unsatisfactory at muzzle velocities of 2000 feet per second. The shell used the T-19 shell body with metallic incendiary units of the magnesium type as a filling. Lacking from this copy is the appendix containing sketch and photograph.

PB 16185. KRIETE, BERTRAND C. and GREGO, ARTHUR B. Multiple suspension of AN-M47A2 bombs in the B-32 airplane. (CWS Tech Div Memo Rept 1071) June 1945. 33 p. Price: Microfilm-50¢ - Photostat-$3.00
It was found that using the adapter, cluster, M24 (T-19), which has already been approved by the Army Air Forces, best meets the requirements for a cluster adapter permitting maximum loading of AN-M47A2 or AN-M47A3 bombs in the B-32 airplane. However there are certain recommendations made to improve the adapter. Attached are a diagram and photographs.

PB 18980. LIBSCH, JOSEPH F. and FISH, STANLEY W. Effect of fillets on endurance life of operating rod assembly, M1 rifle. (Springfield Armory Eng Dept Tech Rept WO-677-Complete) Dec 1944. 45 p. Price: Microfilm-50¢ - Photostat-$3.00
The object of this investigation was to determine points of fatigue failure and endurance life of operating rod assemblies, M1 rifle, from current manufacture, i. e., without fillets; to prepare operating rod assemblies with fillets at points of maximum stress; and to test operating rod assemblies with added fillets for comparison with assemblies from current production. M1 rifle operating rod assemblies of current production generally fail by fatigue in the handle at the junction of the rail and the surface striking the receiver (Illustration I). Some failures occur in the cam section. Both failures originate at sharp corners remaining after fabrication. Application of fillets at the points of fatigue failure and the addition of metal in the cam section markedly increase the life of the rod. The modifications are shown in blueprint sketch. The type of steel used for the handle has little effect on the endurance life of the operating rod assembly. Application of fillets to provide stress distribution at points of failure is essential. Photographs, graphs, tables and blueprints are included.

PB 18979 and PB 18989. LIBSCH, JOSEPH F. and GUESS, ROBERT D. Induction heating - selective hardening. Part I: Piston of "C and R" operating assemblies, M 1 rifle. Part II: Additional small arms components. (Springfield Armory Eng Dept Tech Rept WO 783 - 1st and 2nd partial) Nov 1944, Apr 1945. Part I (PB 18979), 17 p. Price: Microfilm-50¢ - Photostat-$2.00. Part II (PB 18989), 32 p. Price: Microfilm-50¢ - Photostat-$3.00
Part I reports results of investigation made to determine adaptability of induction heating for selective hardening of new pistons for "C & R" operating rod assemblies, M1 rifle; to develop technical data for application of this operation in production; and to obtain operating data relative to production use of the Lepel high frequency converter including maintenance, power consumption, uniformity of results and production rate. The purpose of investigation re-

ported in Part II was to investigate specific applications of induction heating for selectively hardening small arms components. It was found that induction heating is well suited for selectively hardening new pistons of "C & R" operating rod assemblies. High frequency induction heating was applied successfully for selectively hardening areas of the bolt and breech lock cam of the cal. .50 Browning machine gun M2; the piston and the rear end of the slide assembly, cal. .30 Browning automatic rifle; the ejector, cal. .45 automatic pistol M1911 A1 and the barrel, cal. .30 M1 rifle. Results of locally heat treating these parts are presented in individual cases in the report (PB18989). Performance of the Lepel high frequency converter was deemed satisfactory. Appendix 1 in Part I (PB18979) contains laboratory report No. 45-3287-3295, Metallurgical examination of induction hardened "C & R" operating rod assemblies. Photographs are included.

PB 16073. LOFTIN, JAMES C. and others. Improved fuel for burning type, CN grenades E5, grenade, hand, tear, CN. (CWS TDMR 992) Feb 1945. 36 p. Price: Microfilm-50¢ - Photostat-$3.00
The report records the work done in development of a new fuel for CN (chloracetophenone) filled, burning type grenade as a substitute for the present fuel, E.C. powder. It is concluded that an effective grenade can be made by loading a mixture of 25% of CN, 40% of 50/50 potassium chlorate/sucrose fuel, 30% of potassium bicarbonate and 5% of celite. As appendices are enclosed an unapproved tentative filling directive for the grenade and a sketch of asbestos disks.

PB 16042. LOTT, H. E. Freezing tests of H in airplane spray tanks while in flight. (CWS Tech Div Memo Rept 844) May 1944. 25 p. Price: Microfilm-50¢ - Photostat-$2.00
The work described in this report was to determine the rate at which the temperature of Levenstein H (mustard gas) will drop in M10 and M33 airplane spray tanks with standard insulating covers when the M33 tanks are carried in the bomb bay and the M10 tanks are carried on the wing racks of airplanes flying in temperatures encountered at high altitudes. A comparison was also made of the rate of temperature drop in the M33 tank when the discharge line was connected to the tank nozzle in the standard manner and when it was connected in such a manner that it was completely insulated from the tank nozzle with asbestos fiber material. Attached are graphs and drawings.

PB 16180. LOVE, SOLOMON. A study of the use of micropulverized asbestos as a thickening agent for bleach slurry. (CWS TDMR 1064) Sep 1945. 57 p. Price: Microfilm-$1.00 - Photostat-$4.00
The object of this work was to determine the effects of micropulverized asbestos as a thickening agent of bleach slurries. Results were considered satisfactory.

PB 16196. LYDY, C. M. and McLAIN, J. H. Calcination of zinc oxides for HC smoke. (CWS TDMR 1137) Sep 1945. 96 p. Price: Microfilm-$1.00 - Photostat-$7.00
The object of the work reported herein is confined to the following: 1. The processing of various brands of commercial zinc oxides to produce a uniform product having characteristics desired for this ingredient of HC smoke munitions. 2. The selection of a suitable retardant for adjusting the rate of burning of HC smoke munitions. The results of the investigation, conclusions derived, and recommendations made, are given in great detail.

PB 15764. MACINTIRE, B. G. Development of a new fuel for the DM candle. (CWS TDMR 479) Dec 1942. 89 p. Price: Microfilm-$1.00 - Photostat-$6.00
The object of this work was to develop a substitute fuel for the 9-lb. DM (Adamsite) irritant candle, M1, without the use of 30 caliber smokeless powder. A substitute fuel was developed which, however did not give any greater dispersion of the DM than the smokeless powder fuel. The fuel consisted of ammonium nitrate and chloride, calcium carbonate, and charcoal. Tables, drawings and specifications complete the report.

PB 16153. McLAIN, J. H. and HOFFMANN E. D. Development of shell, smoke 4.2" chemical mortar E79 S-WP. (CWS TDMR 1198) Dec 1945. 61 p. Price: Microfilm-$1.00 Photostat-$5.00
The object of this work was to develop a modification of the WP (white phosphorus) 4.2" chemical mortar shell in order to increase its anti-personnel value without reducing its screening effectiveness. Addition of a chip-board canister filled with steel wool pellets proved highly satisfactory.

PB 17214. McLAIN, J. H. and MAYER, S. Correlation of the properties of HC - type E with the density of the constituent zinc oxide. (CWS TDMR 750) Oct 1943. 21 p. Price: Microfilm-50¢ - Photostat-$2.00
Standardized procedures have been devised and tested for measuring the relative density of zinc oxide, and for mixing HC-Type E smoke mixture (48.62 parts zinc to 46.00 parts CCl_4) its burning time. The smoke mixture has been made from 10 commerical brands of zincoxide and their burning time, maximum pressure of loading and consistency compared with their relative densities. Tables and graphs are given.

PB 16188. MCLAIN, J. H. and Padavic, E. R. Development of a cool burning HC smoke mix. (CWS Tech Div Memo Rept 1060) Jun 1945. 24 p. Price: Microfilm-50¢ - Photostat-$2.00
The object of this work was to develop an HC smoke pot which would be cool burning, unaffected by water and moisture, large volume of smoke, low toxicity and several other characteristics. Several types of chemicals were tested. Results are incomplete. Since there was little demand for this product, further research was halted.

PB 16052. McLAIN, J. H. and PADAVIC, E. R. Development of an improved floating smoke pot. (CWS TDMR 822) Apr 1944. 26 p. Price: Microfilm-50¢ - Photostat-$2.00
This report concerns the development of the floating smoke pot, designated M4A2; in such development improvements were sought as regards stability in desert and tropical storage, capability of withstanding rough handling and simplicity of ignition system. Attached are drawings and photographs of the smoke pot.

PB 16047. McLAIN, J. H. and PADAVIC, E. R. Pot, smoke, HC, M5. (CWS TDMR 817) Mar 1944. 28 p. Price: Microfilm-50¢ - Photostat-$2.00
This report describes the work done in the development of the pot, smoke, HC, M5; the specifications were that it be suitable for electrical and mechanical ignition and capable of generating a full volume of smoke for approximately fifteen minutes. A drawing and four photographs are included.

PB 15387. McLEOD, ROBERT D. Jr. Performance test of 4.2" chemical mortar, motorized mounts Nos. 1 and 2 Oct 9, to Oct 19th, 1935, incl. (CWS TDMR 2) Oct 1935. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
The object of the test was to observe the firing of the motorized mounts. Four tests were made at Fort Knox and as a result it was concluded that the motorized mount assembly E6R2 is satisfactory.

PB 15384. McLEOD, R. D. Jr. Proof test of 4.2-inch chemical mortar E5 pack equipment. (Nov 18, 1935) (CWS TDMR 12) Nov 1935. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
This test was conducted as a functional proof test of four mortars modified for pack equipment, the four mortars having different models of barrels. Firing data are given, the mortars passing the proof tests.

PB 15382. McLEOD, ROBERT D. Jr. Report on engineering test of 4.2" chemical mortar shell E38R2 filled with HS. Nov 22, 1935. (CWS TDMR 16) Nov 1935. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
The shell E38R2, filled with HS (Levenstein mustard gas) was tested to determine the proper weight of filling to obtain stability in flight. It was concluded that true flight can be obtained with the shells filled to weights varying from 20 lb. to 23½ lb.

PB 17306. MACY, R. and others. Storage stability of CNS in munitions at 50° and 65°C. (CWS Tech Div Memo Rept 947) Dec 1944. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
The chemical stability of CNS is excellent at 50°C for at least 4 months in 155 mm. shell and in 4.2 in CM shell, and is probably equally good in the 75 mm. shell. No conclusions are given with respect to chemical stability at 65°C because of the accidental loss of samples. The rust preventive oils used in shells decrease the chemical stability of CNS and increase its tendency to develop pressure. Graphs show the pressures developed within shells at 50° and 65°C. CNS is a achrymator and is a solution consisting of chloracetophenone, chloropicrin and trichloromethane.

PB 17218. MAGRAM, S. J. First fires for magnesium bombs. Development of FF20. (CWS TDMR 755) Oct 1943. 59 p. Price: Microfilm-$1.00 - Photostat-$4.00
All possible combinations of magnesium, zirconium, aluminum, titanium, silicon, manganese, magnesium-aluminum alloy and titanium-manganese alloy with sulfur, red lead, lead chromate, cupric oxide, barium chromate, manganese dioxide and iron oxide were tested for sensitivity of ignition by black powder fuzes. The most promising of the two-component mixtures along with some three and four component mixtures were further tested for sensitivity to ignition by fuzes and the 209B primer. Determined were ignition temperatures, impact sensitivities, friction sensitivities, effect of moisture and percentages of non-volatised reaction products of first fire mixtures. The most promising first fires were tested in M-50 bombs in a thirty foot drop test. The best starter, FF20, a mixture of 25% magnesium and 75% bariumchromate was tested in loaded M-50 bombs in high altitude tests and skate tests. Diagrams and tables are included.

PB 4393. MARKUS, H. and others. Steel cartridge cases. (Frankford Arsenal Ordnance Lab Rept M-225) Jun 1942. 208 p. Price: Microfilm-$2.50 - Photostat-$14.00
This is the first edition of a collection of miscellaneous information on the manufacture of steel cartridge cases. The information is arranged and tab-indexed under the following headings: Index; scope of book and range of sizes; treatment to obtain mechanical properties; steel-chemical composition, surface, spheroidizing and hardness, cold vs. hot cupping, non-metallic inclusions; finished cases - dimensions, requirements, mechanical properties, actual tensile properties, base ruptures, bulging in firing, side-wall splits, obturation; welded cases; finishes for finished cases; and addenda. The addenda consist of a list of Frankford Arsenal reports on the manufacture of steel cartridge cases, followed by summaries and an index of these reports.

PB 15385. MILLER, GEORGE A. Report of examination and test of 4.2" chemical mortar shells E48 received from Frankford Arsenal-lots Nos. 1 and 2. Nov 15, 1935. (CWS TDMR 10) Nov 1935. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
Shells filled with CG (phosgene), HS (Levenstein mustard gas) and FS smoke (sulfur trioxide in chlorosulfonic acid) were tested for use in the 4.2-in. mortar. Ballistics characteristics were found satisfactory when the shells were filled to a weight of 25.5 lb. The drawing of the suggested shells is lacking from this copy of the report. For Memo Rept 15, giving further test, see PB 15385.

PB 15380. MILLER, G. A. Report of test of 4.2" chemical mortar barrel with rifling pitch 1 in 12. Dec 3, 1935. (CWS TDMR 19) Dec 1935. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
The object of the test was to observe the ballistic performance of the 4.2" chemical mortar shell when fired from a barrel with rifling pitch increased to 1 turn in 12 calibrations. The conclusion was that the E38R2 shell was stable at this pitch but that there was no advantage over the standard barrel having a twist of 1 turn in 20 calibers.

PB 15829. MRAVEC, J. G. and others. Control of basic open hearth melting practice for the manufacture of wrought gun tubes (OD-34-3) Final report, Oct 1, 1944. (OSRD Rept 4497) Dec 1944. 56 p. Price: Microfilm-$1.00-Photostat-$4.00
The first section of this report discusses the effects of various melting and pouring practice factors on gun tube quality, as well as the relationship between quality of guns pierced from billets rolled directly from the ingot and those doubly converted from the ingot. The effects of such piercing mill factors as piercing temperature, piercing mill power consumption, direction of piercing in relation to the original herring bone structure of the ingot, and the size of piercing plug are also shown. Part II covers the relationships found to exist between the reduction of area, transverse, and the inclusion rating factors of a "good" versus a "bad" heat of gun steel. Based upon the survey of these two heats, the several factors determining the samplings of similar heats of steel necessary to evaluate their non-metallic content is discussed. The number of non-metallic specimens necessary for the accuracy desired and the degree of certainty to be expected for any heat of steel likely to be encountered commercially is discussed in detail. Tables, charts, graphs. This is the final report under NDRC contract with the Timken Roller Bearing Company.

PB 15128. MURRAY, F. J. and SARD, A. The prediction of fuze setting. (NDRC Applied Mathematics Panel AMP Rept 85.1R Rept 4057) Aug 1944. 83 p. Price: Microfilm-$1.00 - Photostat-$6.00
This report studies the merits of three general type of antiaircraft directors, called the complete, the delay, and the correction types. An antiaircraft director is an apparatus which produces the gun orders that are appropriate for each shot fired at a distant airplane in flight. The following conclusions are reached: (1) The delay director, with ideal input, is theoretically accurate for all dead times and for all target speeds; (2) The complete director is superior in performance to the other types but is unduly complex; (3) The correction director is satisfactory for limited ranges of dead times and target speeds. Tables are included. An appendix covers fuze predictions.

PB 16181. NORTON, HOWARD E. and HURST, T. L. Engineering tests of special heating coils for the M2 mechanical smoke generator. (CWS TDMR 1085) Jul 1945. 35 p. Price: Microfilm-50¢ - Photostat-$3.00
A series of tests was conducted on special coils described in this report to determine whether any advantage could be gained over the present coil in use. The present coil is recommended for continued use. Sixteen photographs show the coils after testing and after failure.

PB 15748. NORTON, HOWARD E. and KOZAK, W. F. Installation of Besler smoke generator on personnel carrier, half-track, M-3. (CWS TDMR 598) Mar 1943. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
The object of the experiment was to mount a Besler smoke generator on a half-track personnel carrier M3 and to provide sufficient smoke oil storage facilities for 4 hours continuous operation. The work was successfully performed. Photographs are included of the generator mounted on the carrier and in operation of rough terrain.

PB 16064. ORTYNSKY, R. L. The AN-M76 (T2-E1) 500 lb. incendiary bomb. (CWS TDMR 1028) Apr 1945. 97 p. Price: Microfilm-$1.00 - Photostat-$7.00
As a result of this investigation the AN-M76,500 lb. incendiary bomb, is recommended for use on targets not penetrable by existing incendiary munitions or when advantage can be taken of its greater aimability. Also its incendiary effectiveness should be evaluated when it is released from higher altitudes. Tables, drawings, photographs and graphs are included.

PB 16061. ORTYNSKY, R. L. The E-1 and the E-2 250 lb. incendiary bombs. (CWS Tech Div Memo Rept 1032) Apr 1945. 32 p. Price: Microfilm-50¢ - Photostat-$3.00
Five E-1 bombs were tested statically and by dropping onto the ground; as a result a new design, the E-2, was evolved. Photographs are enclosed which show the results of the tests; also enclosed are drawings of the two types of bombs.

PB 17236. ORTYNSKY, R. L. E-20, 500 lb., cast iron incendiary bomb. (CWS TDMR 929) Nov 1944. 27 p. Price: Microfilm-50¢ - Photostat-$2.00
This report describes the tests on the E-20 bomb casing for service use as an incendiary bomb. It is recommended that cast iron be disapproved for use in the fabrication of a 500 lb. incendiary bomb case. Included are tables, drawing and photographs.

PB 16056. ORTYNSKY, R. L. The 500 lb. incendiary bomb, E-1. (CWS Tech Div Memo Rept 1043) May 1945. 23 p. Price: Microfilm-50¢ - Photostat-$2.00
This is a report of the testing of the E-1, 500 lb. incendiary bomb, of the bursting type utilizing a thin walled bomb case. From the tests described it is recommended that the E-1 not be used against heavy roof construction. Attached are photographs and a drawing.

PB 16051. ORTYNSKY, R. L. Improved burster charges for bursting type smoke munitions, WP filled. (CWS TDMR 820) Mar 1944. 115 p. Price: Microfilm-$1.50 - Photostat-$8.00
This report describes the work carried out to determine the burster charge necessary to improve the screening characteristics of the M47A1 or M47A2, 100-lb. chemical bomb, WP-filled (white phosphorus); and the M70, 115-lb. chemical bomb, WP-filled. Illustrated with 108 photographs.

PB 16193. ORTYNSKY, R. L. and DAIGER, W. H. The M47-A2, 100 lb. chemical bomb, WP-T filled. (CWS Tech Div Memo Rept 1120) Sep 1945. 37 p. Price: Microfilm-50¢ - Photostat-$3.00
The work reported here was to improve the screening characteristics of the M47-A2, 100 lb. chemical bomb, WP (white phosphorus) filled, by the use of cardboard tubing imbedded in the filling. Comparative drop tests were made. Improvement of screening ability was so slight that it was recommended that further work be discontinued.

PB 16194. ORTYNSKY, R. L. and MCCANNE, J. F. The M12 burster for bombs, incendiary, 100 lb., M47-A1 or M47-A2. (CWS Tech Div Memo Rept 1103) Aug 1945. 50 p. Price: Microfilm-$1.00 - Photostat-$4.00
The object of this work was to develop the M12 burster for the M47 series of 100 lb incendiary bombs. Bursters were static and drop tested. The optimum bursting charge is given in the report. It was also noted that the particle shape of the magnesium powder influenced the performance. Variations of the strength of the bomb casing also influence the result. Plastic or aluminum tubes may be used.

PB 15756. ORTYNSKY, R. L. and PONDER, S. G. Tests at Jefferson Proving Ground, Madison, Indiana. (CWS TDMR 418) Jul 1942. 104 p. Price: Microfilm-$1.50 - Photostat-$7.00
The object of this test is to determine the comparative incendiary effect and dispersion of various clustered munitions and single M47 bombs when dropped from an airplane at various altitudes onto targets of medium and light construction. Conclusions are given concerning the M47 100-lb., small oil-filled, small metal and plastic bombs and incendiary oil, bursters and the impact area from clusters. Charts and tables illustrate the report, of which some may not photograph well.

PB 16190. PAULSON, T. R. and STERN, MILTON. M5 time and superquick fuze for the 4.2" C.M. shell. (CWS TDMR 1056) Jun 1945. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
This report traces the work done by the CWS Technical Command to modify the E39 fuze designed by the Ordnance Department for the 4.2" chemical mortar. As a result of the investigation the M5 fuze is not recommended for air burst functioning of high explosives against ground targets but is recommended for use on the illuminating and colored smoke shell. Appended are data on the E39, and a list of E numbers and a drawing of the M5.

PB 16111. PLESS, W. A. Special turret chain sling and boom for heavy wrecker M1. (General Motors Proving Ground Project 180-8 Rept PG-2.906) Oct 1943. 20 p. Price: Microfilm-50¢ - Photostat-$2.00
This report covers findings and conclusions resulting from the removal of M3 and M4 Medium Tank Turret and Basket, using heavy wrecker M1 as a facility. This operation tested for strength and convenience a special turret sling ord. 71-339M, and the latest production boom model U. S. 6A, Appendices B and C contain the procedure established and data obtained while removing the turrets and baskets using heavy wrecker M1 and subject equipment as facilities. Nine photographs illustrate the actual tests.

PB 18986. ROMANO, P. V. Brief investigation of "Flash" phosphate treatment on the corrosion, protective, and dimensional properties of small arms components. (Springfield Armory Eng Dept Tech Rept WO-816) Jul 1945. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
A five-minute immersion in a standard parcolubrizing or parkerizing bath, operated under the standard process specifications recommended by the Parker Rust Proof Company for temperature and solution concentration balance, produces a coating of practically no significant build-up and of an unoiled corrosion resistance equal to the specified corrosion resistance of unoiled oxide coating that requires approximately thirty-minute immersion in a concentrated caustic bath for formation. In view of the greater durability of manganese-base phosphate coatings (parcolubrite), particularly with respect to heat, alkali, and abrasion resistances, it is recommended that parcolubrite rather than parkerizing be considered for use. This coating will also provide an excellent base for good adhesion of paints, lacquers, and other organic finishes in cases where these coatings may be desired. Results of the dimensional measurements, coating thicknesses, and corrosion tests are presented in table accompanying report.

PB 16187. RUSSUM, L. W. and others. Development of the portable flame throwers M1, M1A1, and M2-2. (CWS TDMR 1069) Jun 1945. 79 p. Price: Microfilm-$1.00 - Photostat-$6.00
This report describes the development of the portable flame throwers. The M-1 used 2 fuel tanks with a total capacity of 5 gallons, range about 20 yards, weight 68 pounds. The M1A1, using a Y type discharge valve was able to use thickened gasoline and had range up to 70 yards. Compressed air as well as nitrogen was used. The M2-2 was an improvement utilizing an expendable magazine to hold the ignition charge. The total weight was 68 lbs.

PB 16192. SCHERR, H. Target effect of flame thrower fuels in laboratory bunker. (CWS TDMR 1122) Aug 1945. 27 p. Price: Microfilm-50¢ - Photostat-$2.00
The objects of the work described were (1) to evaluate the target effect of 8 flame thrower fuels, submitted by the Toxicological Research Laboratory, using the laboratory bunker, and (2) to attempt a correlation between the results in the laboratory bunker and in field installations. The major conclusion following this work is that the fuel volume injected into the bunker has major physiological significance. Included are twenty tables and a graph.

PB 16195. SWEENEY, H. A. Test of 4.5 inch barrage rocket bodies, MK7 and MK10, filled with WP or PWP. (CWS TDMR 1135) 1945. 54 p. Price: Microfilm-$1.00 - Photostat-$4.00
The major aim was to develop suitable rocket bodies and fillings for Navy rockets. This particular report was concerned with the development of a 4.5 inch Smoke Rocket for WP (white phosphorus) and PWP (plasticized white phosphorus). Specific recommendations as to the value of MK7 and MK10 are contained in the report.

PB 16156. TAYLOR, RICHARD R. 4.2 in. chemical mortar fuze, superquick, M42R3, Detent type. (CWS Tech Div Memo Rept 1170) Nov 1945. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
This fuze was found to be inoperative and its principle unsound. It is recommended that no further work be done with Fuze M42R3.

PB 16123. U. S. WAR DEPARTMENT. ABERDEEN PROVING GROUND, MD. Performance testing with the time-distance recorder: First partial report. (APG Rept 30-1) Oct 1936. 57 p. Price: Microfilm-$1.00 - Photostat-$4.00
The object of this test is to widen the scope of performance data obtainable on vehicles submitted for the Proving Ground test, particularly to make it possible to secure information as to accelerating characteristics, hill climbing ability, and braking ability, together with data on drawbar pull and resistance to traction at higher speeds. The time-distance recorder shows in four photographs, produces an autographic record of time elapsed, distance traveled, and manual markings to indicate the beginning and end of runs and points where gear ratios are changed. The various performance tests which can be made with the Time-Distance Recorder are explained and described in great detail. Appendix A contains fifteen curve sheets and twelve log sheets of various tests.

PB 16120. U. S. WAR DEPARTMENT ABERDEEN PROVING GROUND, MD. Report on investigation of fan power consumption on medium tank T4. (Rept 27-2) May 1937. 17 p. Price: Microfilm-50¢ - Photostat-$2.00
The object of this test was to determine the fan power consumption on the medium tank T4, and to study methods of reducing this power or improving cooling, or both. Features of the test are given in Appendix A. Appendix B illustrate in two photographs preparation of the vehicle for the dynamometer test; Appendix C contains two data sheets of the test with static pressure measurements of intake and discharge side of fan; and Appendix D contains two curve sheets showing power consumed by the fan. Test results indicated that the fan used in the medium tank T4 was satisfactory.

PB 18586. U. S. WAR DEPARTMENT. CHEMICAL WARFARE SERVICE. Decontamination. (Tech Manual TM3-220) Nov 1943. 79 p. Available from Supt. of Documents. Price: 15¢
This manual is intended to supplement FM21-40 by providing information on the materials, equipment, and techniques used in chemical decontamination. It covers the nomenclature, functioning, care and maintenance of the principal types of hand-operated decontamination apparatus and the various kinds of decontamination materials, their storage, preparation, and use: Power-driven decontaminating apparatus are described in other manuals, but certain decontaminating techniques described in this manual require use of power-driven decontaminating apparatus. Appendices contain a list of references, table of characteristics of decontaminating apparatus, list of useful nonstandard decontaminating agents, list of tools and equipment useful in decontamination, and table of dimensions, displacement, and weight of typical standard decontaminating apparatus and agents.

PB 13989. U. S. WAR DEPARTMENT. CHEMICAL WARFARE SERVICE. (Proposed Amendment to U. S. Army Specification 97-54-275 (13 July 44) Mar 1945. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
This proposed amendment lists the change in specifications of the oil used for mechanical smoke generators. Attached is specification 197-54-27b, dated Dec 14, 1942, describing the method of sampling, inspection, testing and packing of the fog oil.

PB 18565. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. Passage of obstacles other than mine fields. (Tech Manual TM 5-220) Jul 1945. 141 p. Price: Microfilm-$1.50 - Photostat-$10.00
This technical manual describes devices and technique useful in the passage of obstacles other than mine fields. It details engineer and other methods of passing such obstacles, and describes issue, special and improvised equipment, including its assembly, employment, and effectiveness. Special applications of standard weapons and techniques are included. Chapter 1, 2, and 3 cover passage of land obstacles; Chapter 4 deals with underwater and beach obstacles. The manual contains 128 illustrations including photographs, drawings and diagrams.

PB 16112. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Aberdeen Proving Ground, Md. Valves; fuel tank vent; First report (Forty-fifth report on Ordnance program 5464). (Aberdeen Proving Ground. Rept 243-3) Dec 1942. 4 p. Price: Microfilm-50¢ - Photostat-$3.00
The two phases of the investigation reported herein were: a) Checking the venting characteristics of the Ordnance type test vent valve against those of the standard float type vent valve, by heating gasoline to 133°F. in a medium tank sponson fuel tank to determine if the test valve would be satisfactory for use on Medium Tank fuel tanks; and b) determining the proper venting and length of a solid portion for the fuel tank filler screens which had been proposed for maintaining an expansion space when filling the fuel tanks. Numerous conclusions and recommendations were made. Log sheets of test are given in appendix. Photograph of fuel tank vent valves are included.

PB 18972. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. SMALL ARMS DIVISION. Gun, machine, Browning, cal. .30 M1917A1, M1919A4 fixed and flexible, M1919A5 fixed, M1919A6. (Ordnance Stand Inspection Procedure S6) n.d. 145 p. Price: Microfilm-$1.50 - Photostat-$10.00
This standard inspection procedure is supplementary to the Small Arms Handbook on Small Arms Weapons, Mounts, Accessories and Spare Parts ORD-M508-SI. Together the two publications constitute the inspection instructions to be followed by establishments manufacturing the subject equipment. This manual contains information regarding the development and general characteristics of these Browning Cal. .30 ground guns, their tactical employment and operation; reference data regarding contracts, gage lists, and manuals; inspection equipment other than gages; detailed inspection procedure; final handling; and gage control. Photographs and drawings are included.

PB 16178. WATTS, ARTHUR P. Development of fuse adapters and bursters for the igniter, incendiary gasoline tank. (CWS Tech Div Memo Rept 1089) Aug 1945. 83 p. Price: Microfilm-$1.00 - Photostat-$6.00
This research shows the following: A. Bursters. The development of the C8R1 and C8R2 bursters which in conjunction with M9R17, M9R20 and M9R22 fuses functioned satisfactorily. B. Adapters. Satisfactory development of: 1. Exterior igniter type. 2. Interior igniter type.

PB 16168. WATTS, A. P. The development of incendiary units for the destruction of the contents of safes and secret cryptographic machines. (CWS TDMR 1140) Oct 1945. 60 p. Price: Microfilm-$1.00 - Photostat-$4.00
The object was to develop small, effective incendiary units for the destruction of the contents of safes and of metal cases housing secret cryptographic machines. The Incendiary, Safe Destroying E1 destroyed contents of safes effectively. The Incendiary, Equipment Destroying, E2 destroyed the cryptographic equipment effectively.

PB 16188. WHITAKER, L. W. Low altitude field testing of the U.S. Navy bomb Mark 66, Mod. 0, as a fire bomb. (CWS TDMR 1162) Dec 1945. 26 p. Price: Microfilm 50¢ & Photostat-$2.00
This report covers the evaluation of the low altitude use of the Mk 66 bomb as a fire bomb. It is recommended that this gasoline gel-filled bomb not be used as a fire bomb in preference to the droppable fuel tank fire bomb. Attached are photographs, table, graph and drawings.

PB 17308. WHITAKER, LAWRENCE W. and WINER, MAX. Messenger pouch destroyer, E5. (CWS Tech Div Memo Rept 949) Jan 1945. 86 p. Price: Microfilm-$1.00 - Photostat-$6.00
The experimental work involved the development of 3 component parts, each independently developed, and jointly tested: 1. Igniter, 2. Explosive element, and 3. Pyrotechnic Paper. The Messenger Pouch Destroyer, E5 was developed and is composed of two essential components, a pyrotechnic paper and an igniter with a delayed explosive charge.

PB 16973. WHITTLETON, HARRY M. Historical data, Murray Manufacturing Corporation, 60 m/m, M49A2, 81 m/m M43A1, welded type, trench mortar shell. Nov 1945. 148 p. Price: Microfilm-$1.50 - Photostat-$10.00
This report tells the story of the production of 20,000,000 mortar shell during the period January 1941 to August 1945. The report is divided into the following chapters: I. Biographical history; II. Pre-ordnance, preliminary negotiations and experiments; III. First contract for trench mortar shell; IV Corporate development and expansion; V. Personnel, training and labor relations; VI. Production records and data; VII. Material and other savings resulting from the Murray Process; VIII. Murray Process of mortar shell manufacture; IX. Inspection, Company and Ordnance; X. Sub-contractors; XI. Expansion assistance rendered by the Government; XII. Service functions; XIII. Honors, awards and citations; XIV. Credits to individuals; XV. Conclusion, and chronological diary of important events. Photographs and charts are included.

PB 16058. WILLKE, L. G. Development of bombs, AN-M50X-A3; type A, type B, and type B alternate. (CWS Tech Div Memo Rept 1041) May 1945. 40p. Price: Microfilm-50¢ - Photostat-$3.00
This report records work done to improve the functioning of the incendiary bomb, AN-M50X-A2, to assist in the development of methods of manufacture, and to determine safe storage spacing in the field. It is concluded that AN-M50X-A3 type A is superior to AN-M50X-A2, type, and it is recommended that the former, together with types B and B alternate, be standardized and put into production. Nine photographs are attached, but the drawings mentioned are lacking from this copy.

PB 17096. WOODBERRY, DAVID L. Chemical fillings for artillery shell: Static tests of 155-mm. (HCW.) chemical shell T6E1, filled with WP and simulated HS. (CWS Div Memo Rept 215) Feb 1940. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
From the results of this investigation it is concluded that: a. The 196 gram tetryl burster charges as used in these tests are not satisfactory from the viewpoint of chemical distribution and smoke production. b. The 196 gram tetryl bursting charge is too violent and fragments the shell to a greater degree than desired. c. The bursting charge should be reduced from 196 grams of tetryl to 170 grams and additional tests made to definitely determine the adequacy of such a bursting charge for use in 155 mm. shell with all the required types of fillings. d. The clearance between the outside diameter of the burster tube and the inside diameter of the burster tube well should be increased to facilitate ease of assembling of the burster tube into the burster tube well.

PB 15340. WOODBERRY, DAVID L. Chemical fillings for artillery shell static tests of the 75 mm chemical shells T10 and MK.II filled with FS, WP, and simulated HS, April 15, 16, and 22, 1940. (CWS Tech Div Memo Rept 226) May 1940. 23 p. Price: Microfilm-50¢ - Photostat-$2.00
Tests are described from which it is concluded that the T10 shell, with the 1 burster, appears to be satisfactory for use with FS smoke (sulfur trioxide in chlorosulfonic acid) and WP (white phosphorus), but unsatisfactory for use with simulated HS (simulated Levenstein mustard gas). Photographs and charts illustrate the report.

PB 15350. WOODBERRY, D. L. Report of engineering tests of chemical projector and Livens projector materials. May 23, 1939. (CWS Tech Div Memo Rept 175) Jun 1939. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
These firing tests were performed on chemical projector barrel E1R1, shell E20R1 and Livens projector propelling charge E7R8. The materials tested performed satisfactorily.

PB 15349. WOODBERRY, D. L. Report of engineering tests of chemical projector materials (June 6 and August 2, 1939). (CWS Technical Div Memo Rept 182) Aug 1939. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
Tests are described for actual firing tests of chemical projector materials. Tables give the results and compare the chemical projector with the Livens projector.

PB 15386. WOODBERRY, D. L. Report of preliminary engineering test of SO_3 filled 4.2" chemical mortar shell M1A1 (E36R2), fired statically. Oct 24, 1935. (CWS TDMR 4) 14 p. Price: Microfilm-50¢ - Photostat-$1.00
The object of this test was to determine the value of SO_3 (sulfur trioxide) as a smoke producing agent. Tests disclosed that SO_3 did not produce satisfactory results. Nine photographs accompany the report.

PB 15379. WRIGHT, H. V. Report on test of 4.2" chemical mortar shell E38R2, HS and CG filled. Dec 3, 1935. (CWS Tech Div Memo Rept 20) Dec 1935. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
This report covers tests to determine the proper weight of HS (Levenstein mustard gas) and CG (phosgene) filling to obtain stability in flight. It is concluded that the shell filled with 24 lb. 2 oz. of HS and 24 lb. 3 oz. of CG is stable when fired from the Surface Setup (Improved) with Standard E7.

PB 15381. WRIGHT, H. V. Report of test of 4.2" chemical mortar shells E38R2 and E48. Nov 27, 1935. (CWS Tech Div Memo Rept 17.) Nov 1935. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
The objects of this test were to determine the proper weight of HS (Levenstein mustard gas) for the E38R2 to obtain stability in flight and to check stability in flight of the E48 shell when filled with FS smoke (sulfur trioxide in chlorosulfonic acid) and HS and fired at short range. Results of the tests are given; both shells being stable in flight.

PB 15383. WRIGHT, H. V. Report of test of 4.2" chemical mortar shells E48, manufactured at Frankford Arsenal. (CWS TDSR 15) Nov 1935. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
The object was to ascertain if this shell filled with CG (phosgene), HS (Levenstein mustard gas) and FS smoke (sulfur trioxide in chlorosulfonic acid) to a weight of 25.5 lbs. was stable in flight. Firing data are given showing flight to be stable. For Memo Rept 10 on examination and test of shells E48, see PB 15385.

PB 18992. ZAVARELLA, A. and ROMANO, P. V. Functional and corrosion tests of cadmium plated springs for the cal. 50 MMG. (Springfield Armory Eng Dept Tech Rept WD-803) May 1945. 60 p. Price: Microfilm-$1.00 - Photostat-$4.00
The object of the tests was to determine whether cadmium plating of subject springs for corrosion resistance produced any deleterious effects on the functioning of these springs during service firing. Results of these tests showed that neither class TSC or OSC plated finishes on cal. .50 MMG springs caused any malfunction during the 10,000 rounds endurance tests. From the corrosion tests concluded, the class OSC coating showed superior corrosion resistance and is preferred for adoption for use on all cal. .50 machine gun springs. Of the after treatments examined for additional protection of the cadmium, the Cronak, Iridite, and Unichrome olive drab treatments were found to provide improvements, the first two mentioned being the best. Observations are also presented of tests that have been completed comparing the corrosion resistance of zinc plated clips with various after-treatments. U. S. Army specifications for "Finishes, Protective, for Iron and Steel Parts," dated December 11, 1943, superseding those of July 16, 1942, and amendment 2 of January 16, 1945, superseding amendment 1, are included. Tables, photographs and graph accompany this report.

PB 18976. ZIFFRIN, L. Heat treatment of steel cartridge cases. (Edison Gen Electric Appliance Co Tech Rept 146.) Dec 1943. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
A new method of heat treatment for steel high velocity cartridges cases is described in this report. A high frequency current adjusted to 18 KW was used as the source of heat. Optical pryometer readings ranged from 1620°F. to 1650°F. A stepped heating cycle was employed consisting of 26 seconds for first heat-on period, 8 second off-current period - 14 seconds final heat-on period. A 10% brine solution maintained in the temperature range of 65°F. to 80°F. was used for the quenching solution, the bath being moderately agitated. The tempering operation was carried out in a recirculating type gas-fired furnance, with temperatures ranging from 700°F. to 725°F. Included are a chemical analysis of the steel used, diagrams showing the quenching operation and hardness, data of hardness according to Rockwell scale; a photomicrograph; tensile test data; and firing test record.

PACKING AND PACKAGING

PB 11169. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Ammunition trailer M-10; S.N.L. Group No. C-59. Export Packing Procedure. Two unit pack, T.U.P. (OPC instructions 86) Jan 1944. 27 p. Price: Microfilm-50¢ - Photostat-$2.00
This instruction book furnishes detailed information on how to pack for export, in a two unit pack, ammunition trailer M-10. Eight photographs show: the complete trailer, the trailer disassembled for packing, the various sides of the packing box, and the various stages during the packing. Instructions are given on prepacking the parts prior to crating, construction of the container, bill of material, and nailing schedule.

PB 11165. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Export cover for half-track multiple gun carriage M-16, single unit pack (S.U.P.). Export packing procedure. (O. P. C. Instructions 90) Dec 1943. 20 p. Price: Microfilm-50¢ - Photostat-$2.00
Procedure for packing the half-track M-16 is subdivided as follows: disassembly of vehicle prior to adding cover; corrosion preventive processing procedure; packaging prior to adding cover; and general instructions. Five photographs show the procedure to be followed in packing the vehicle. The lumber for constructing the container is described as well as weather proofing, nailing schedule, corner irons, painting procedure, and diagonals and top struts. There are 11 working drawings for the cover, and a detailed bill of material.

PB 11152. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. M5 Bomb trailer, four wheel including bomb racks with frame, ordnance No.D-76911. Single unit pack(S.U.P.). Supersedes F.P.L. instructions 897. Export packing procedure. (O. P. C. Instructions 69) Sep 1943. 21 p. Price: Microfilm-50¢ - Photostat-$2.00
One photograph shows the bomb trailer disassembled with all parts identified and listed. Detailed instructions are given for the corrosive preventive procedure and prepacking prior to crating. Six photographs illustrate the procedure to follow in placing the parts in the container and one photograph shows the completed container ready for shipment. For construction of the container there is a bill of material, a nailing schedule, and four assembly drawings.

PB 11107. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Modification kit for tank recovery, semi-trailer; changing M-15 to M15A1. S.N.L. Group G-160. Export packing procedure. Single unit pack (S.U.P). (O. P. C. Instructions 180) Dec 1944. 22 p. Price: Microfilm-50¢ - Photostat-$2.00
All parts to be packed are listed and identified. Seven pictures illustrate the procedure to follow in placing the various parts in the container. For construction of the container there is a bill of material, an illustrated nailing schedule and eight assembly drawings.

PB 11074. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Mount, trailer, multiple cal. .50 machine gun, M55 (includes trailer, mount, M20 & mount, multiple cal. .50 machine gun, M45C complete with accessories & 4 guns each). Export packing procedure. Single unit pack (S.U.P.) (O.P.C. Instructions 145) 66 p. Price: Microfilm - $1.00 - Photostat - $5.00
The required method for packing the mount, trailer, M-55 for export shipment is method II pack. Early productions of the M-20 trailers, did not have removable drawbars, and required a longer crate, method I pack. There instructions cover the trailers with removable drawbars. However, drawings and bills of material for method I pack are included as a matter of record. Instructions are given for the disassembly of the vehicle, for preparation of the batteries, for packing of electrolyte, the jacks, tires, wheels, and bracket assembly. Packing procedures for both method I pack and II pack are given. Fourteen photographs show the various stages in packing and one photograph the complete crate ready for transit. Complete information is given on construction of the container for M-55, together with a detailed bill of material, nailing schedule and twelve assembly drawings. For M-20 or method I pack there is also included a detailed bill of material and twelve assembly drawings.

PB 17148. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instructions for "A" end unit for remote control system, M2. (Packaging Instruction AFFS-25) 1943. 23 p. Price: Microfilm - 50¢ - Photostat - $2.00
Instruction and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 17166. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for aiming circle M1 with tripod and carrying case. (Packaging Instruction AFPS-93.) 1944. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
This instruction for packing the aiming circle to prevent damage during shipment and storage was prepared under direction of the Chief of Ordnance by the Fire Control Sub-Office of the Frankford Arsenal. Photographs.

PB 17132. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for binocular M3, M5, M6, M8, M9, M13. (Packaging Instruction AFPS-12) 1944. 14 p. Price: Microfilm - 50¢ - Photostat - $1.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 17164. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for binocular M3, M6, M9, M13, M13A1 W/E. (Packaging Instruction AFPS-12-1). 1945. 12 p. Price: Microfilm - 50¢ - Photostat - $1.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 17131. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instructions for complete export packaging for binocular, M3, with carrying case, M17. (Packaging Instruction AFPS-12) 1942. 10 p. Price: Microfilm - 50¢ - Photostat - $1.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal.

PB 17135. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instructions for complete export packaging for director, M7. (Packaging Instruction AFPS 9) 1943. 45 p. Price: Microfilm - 50¢ - Photostat - $3.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs and diagrams.

PB 16993. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instructions for crate, packing, for telescope height finder, 13½ ft., M1. (SNL group F-71). (AFPS-54) Oct 1943. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
These instructions and packaging procedure for the packing crate for telescope, height finder, 13½ ft., M1 were prepared by the Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Diagrams of crate and detailed specifications are given.

PB 17152. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for directors M5, M5A1, M6. (Packaging Instruction AFPS-22) 1944. 19 p. Price: Microfilm - 50¢ - Photostat - $2.00
Instruction and packaging procedure for shipment of subject instruments, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs and drawing.

PB 17153. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount, telescope, M19, W/E. (Packaging Instruction AFPS 21-1) 1945. 9 p. Price: Microfilm - 50¢ - Photostat - $1.00
Instruction and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 17147. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instructions for mount, telescope, M21A1 W/E. (Packaging Instruction AFPS-27-1) 1945. 16 p. Price: Microfilm - 50¢ - Photostat - $2.00
Instruction and packaging procedure for shipment of subject instrument prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs and diagrams.

PB 17162. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount telescope M23 W/E. (Packaging Instruction AFPS-13-2) 1945. 9 p. Price: Microfilm - 50¢ - Photostat - $1.00
Instruction and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 17161. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount telescope M24, M24A1. (Packaging Instruction AFPS-14-1) 1944. 13 p. Price: Microfilm - 50¢ - Photostat - $1.00
Instruction and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph and drawing.

PB 17160. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instructions for mount telescope M26. (Packaging Instruction AFPS-15) 1943. 21 p. Price: Microfilm - 50¢ - Photostat - $2.00
Instruction and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 17159. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount telescope M27. (Packaging Instruction AFPS-16-1) 1943. 12 p. Price: Microfilm - 50¢ - Photostat - $1.00
Instruction and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 17154. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount, telescope, M36, W/E. (Packaging Instruction AFPS-20-1) 1945. 9 p. Price: Microfilm - 50¢ - Photostat - $1.00
Instruction and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 17014. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mt. telescope, M42. (SNL group F-235) (AFPS-31) Apr 1943. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for mount telescope, M42, prepared by the Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 17192. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount, range finder, M58. (Packaging Instruction AFPS-109) 1944. 11 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction for packing the range-finder mount to prevent damage during shipment and storage was prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 16995. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount telescope T88. (SNL group F-300). (AFPS-59) Feb 1944. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
These instructions and packaging procedure for the telescope mount T88 were prepared by the Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs and diagram are included.

PB 17011. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount, quadrant, M1, W/E (SNL group P-180) (AFPS-34-2) Feb 1945. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for mount, quadrant, M1, W/E, prepared by the Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 17136. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for oil, gear, M1. (Packaging Instruction AFPS-8-1) 1945. 14 p. Price: Microfilm - 50¢ - Photostat - $1.00
Instruction and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs and diagrams.

PB 17134. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instructions for Ordnance Department watches, wrist. (Packaging Instruction AFPS-10-1) Aug 1945. 10 p. Price: Microfilm - 50¢ - Photostat - $1.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph. Applicable specifications are listed.

PB 17165. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for periscopes M5, M12 and T22. (Packaging Instruction AFPS-95, rev. #1.) 1945. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
This instruction for packing the subject periscopes to prevent damage during shipment and storage was prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal. There is a photograph of the periscope and a diagram of the pads used in packing.

PB 17133. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for quadrant, elevation M1 W/E. (Packaging Instruction AFPS-11 rev. 1) 1945. 15 p. Price: Microfilm - 50¢ - Photostat - $1.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs and diagram.

PB 17013. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for quadrant, range, M3, W/E M3A1, W/E or M8, W/E. (AFPS-33-1) Aug 1945. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
Instructions and packaging procedure for range quadrant M3, W/E, M3A1, W/E, or M8, W/E, prepared by the Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs, diagram.

PB 17149. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for quadrant, range, M4. (Packaging Instruction AFPS-26) 1944. 11 p. Price: Microfilm - 50¢ - Photostat - $1.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 17032. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instructions for red eye glasses, M1. (AFPS-39) Apr 1943. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for red eye glasses M1, prepared by the Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal.

PB 17150. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instructions for setter, fuze, M13. (Packaging Instruction AFPS-24) 1943. 21 p. Price: Microfilm - 50¢ - Photostat - $2.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 17151. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for sight M4 W/E. (Packaging Instruction AFPS-23) 1945. 11 p. Price: Microfilm-50¢ - Photostat - $1.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 17137. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for sight telescopic, M1, W/E. (Packaging Instruction AFPS-7-2) 1945. 9 p. Price: Microfilm - 50¢ - Photostat - $1.00
Instruction and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 17009. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for system, sighting, M6. (SNL group-251) (AFPS-36) Mar 1943. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
The instructions and packaging procedure for system, sighting, M6 presented herein were prepared by the Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs are included.

PB 17155. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for telescope, elbow, M5, M14A1, M16A1C, M24A1, M26A1, M29A1, M61. (Packaging Instruction AFPS-19) 1945. 13 p. Price: Microfilm - 50¢ - Photostat - $1.00
Instruction and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 17157. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for telescope M70C, D, F, G (formerly telescope M51). (Packaging Instruction AFPS-18) 1944. 12 p. Price: Microfilm - 50¢ - Photostat - $1.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph and diagram.

PB 17146. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for telescope panoramic M12A1, (Packaging Instruction AFPS-28) 1944. 14 p. Price: Microfilm - 50¢ - Photostat - $1.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs and diagrams.

PB 17029. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instructions for watches, pocket and stop in chipboard cartons. (AFPS 62-2) Aug 1945. 14 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for watches, packet and stop in chipboard cartons, prepared by the Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 11146. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. T-24 Cargo carrier with 15 inch track, including crash unit, complete with tarpaulins, radio, and antenna. Single unit pack (S.U.P.). Export packing procedure. S.N.L. No. G-179. (O. P. C. Instructions 63 and Amendment 1) Sep 1943. 40 p. Price: Microfilm-50¢ - Photostat-$3.00

Instructions are given for disassembly of cargo carrier prior to crating, corrosion preventive treatment, and prepacking prior to crating. Five photographs illustrate the procedure to follow in placing the prepacked boxes and the carrier in the crate. For construction of the container there is a complete bill of material, a nailing schedule, and seven assembly drawings.

PB 11130. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Tentative loading procedure for export wood cargo bodies. (O. P. C. Project 38-A) n.d. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
The loading procedure is described and illustrated in four photographs. All loads are to comply with A. A. R. rules governing the loading of commodities on open type cars, and shall have the approval of the local railroad inspector.

PB 11167. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Truck 3/4 ton, 4 x 4 weapons carrier, with or without winch: engine model T-214; 98" wheelbase; displacement - 230.2 cu. in. Two unit pack - T.U.P. Export packing procedure. (OPC Instruction 88) Dec 1943. 57 p. Price: Microfilm-$1.00 - Photostat-$4.00
This instruction book furnishes detailed information on how to pack for export, in two pack units, 3/4 ton weapon carrier trucks. It covers in detail: complete lists of parts to be removed from the vehicles, to be packed in either chassis, body or axle crates; corrosion preventive procedure; construction of containers; prepacking prior to crating; packing of disassembled parts; nailing schedule; list of miscellaneous packing materials, and bills of material for each crate. The manual contains drawings and photographs.

PB 11140. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Truck 2½ ton - 6x6 G.M.C. Model CCKW-353 (long wheel base) with winch. Two unit pack (T.U.P.). Export packing procedure. The following instructions cover all revisions prior to January 1, 1944. S.N.L. Group No. G-508 (O. P. C. Instructions No 56) Feb 1944. 114 p. Price: Microfilm-$1.50 - Photostat-$8.00
Instructions are given for disassembly for both vehicles. The parts are packed in three containers: chassis crate, cab crate, and axle crate. There is a detailed packing list for each container and full instructions for prepacking prior to crating. Photographs illustrate the procedure to follow in placing the parts in the crates: for construction of each container there is a bill of material, a nailing schedule, and assembly drawings.

PB 11141. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Truck 2½ ton - 6x6, G.M.C. Model CCKW-353 (long wheelbase) without winch; two unit pack (T.U.P.) soft top cab. Export packing procedure. The instructions cover all revisions prior to January 1, 1944. (O. P. C. Instructions 57) Jan 1944. 120 p. Price: Microfilm-$1.50 - Photostat-$8.00
Instructions are given for disassembly of both vehicles. The parts are packed in three containers, the chassis crate, cab crate, and axle crate. There is a detailed packing list for each crate and full instruction for prepacking prior to crating. Photographs illustrate the procedure to follow; a bill of material, a nailing schedule, and assembly drawings are also included.

PB 11072. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Truck 4 ton 6 x 6 Diamond T, short wheel base, Model 972, dump body - soft top cab. Export packing procedure. Single unit pack (S.U.P.). (O.P.C. Instructions 143). Jul 1944. 33 p. Price: Microfilm-50¢ - Photostat-$3.00
Instructions are given for disassembly of the vehicle prior to crating, corrosion preventive procedure, and prepacking before crating. Five photographs illustrate the procedure to follow in placing the various parts in the crate, and one photograph shows the crate ready for shipment. For construction of the container there is a complete bill of material, a nailing schedule, and 23 assembly drawings.

PB 11126. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Why ordnance approved A.A.R. car loading methods are necessary. (O. P. C. Instruction 602) Jun 1945. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
Car loading is an essential step in the chain of operations leading to the delivery of war material to the storage depot and to the front lines. This book emphasizes the proper procedure for stacking and bracing cans and pails in carload lots. The book contains five photographs showing damaged freight through faulty bracing and loading, and three photographs showing well loaded cars.

PERSONNEL APTITUDE TESTING AND JOB TRAINING

PB 18323. ADAMS, J. K. and FOWLER, H. M. Report on the reliability of two forms of an activity preference blank. (Applied Psychology Panel: Selection and training of fire controlmen (R). Rept 5). (NDRC Applied Psychology Panel Rept 186. OSRD Rept 3778) Jun 1944. 72 p. Price: Microfilm-$1.00 - Photostat-$5.00
In the research program on the selection of fire controlmen an interest test was included for the purpose of measuring a factor related to motivation. This report describes the construction, administration, and reliability of Forms I and II. Both forms were found to contain a large number of reliable items.

PB 18331. BEIER, D. C. and others. Lesson plans on selection and training for rangefinder officers' course, fire controlmen (O), rangefinder operators, naval training schools, Fort Lauderdale, Florida. (Applied Psychology Panel: Selection and training of rangefinder and radar operators. Memo 7). (NDRC Applied Psychology Panel Rept 236. OSRD Rept 3961) Jul 1944. 33 p. Price: Microfilm-50¢ - Photostat-$3.00
This memorandum is an outline series of lesson plans pertaining to the selection and training of fire controlmen (O), rangefinder operators. Training is treated first and selection second. The lessons on training describe the instruments available for training and indicate principles of learning and training procedure which have been found effective. They also include a brief description of some of the jobs of the director and plotting room crews so that this material logically precedes the presentation of the material on selection.

PB 18327. BEIER, D. C. and others. The selection of fire controlmen (O) rangefinder and radar operators. (Applied Psychology Panel: Selection and training of rangefinder and radar operators. Rept 19). (NDRC Applied Psychology Panel Rept 494. OSRD Rept 4861) Mar 1945. 45 p. Price: Microfilm-50¢ - Photostat-$3.00
This report presents the results of an experimental analysis and validation of selection requirements for the selection of Fire Controlmen (O), Radar and Rangefinder Operators. In general, the study consisted of an investigation of the predictive relationship of various paper and pencil tests and various visual tests (administered prior to or upon entrance) to graduation achievement and performance criteria. The tests examined include the following Navy tests: The General Classification Test, the Mechanical Aptitude Test, the Reading Test, the Arithmetic Test, the Mechanical and Electrical Knowledge Tests and the Spatial Relations Test. In addition, the following Oscilloscope Operators Tests, developed by NDRC Project NS-146, SC-70, were investigated: Form Detection Test, Oscilloscope Reading Test, Spot Location Test, Target Course Analysis Test, Ratio Estimation Test, Plot Reading Test, Coordinate Plotting Test and the Polar-Grid Coordinate Test. The Activity Preference Blank, Form II, developed by Project M-114, was also investigated. Finally, the Ortho-Rater Industrial Vision Tests and the Multiple Projection Ikonometer (Stereo-Vertical) Test were examined. After an investigation of many possible combinations of the tests at various cut-offs, it appears that in terms of selection and instruction cost and other practical considerations, the following two batteries of tests yield the most satisfactory results: Battery no. 1 - General Classification

Test -50 and above, Arithmetic test - 45 and above, Ortho-Rater visual acuity worse eye score - 9 or greater, Ortho-Rater Vertical Phoria score - not less than 4 nor more than 7 with hyperphoria not greater than ½ prism diopter, Ortho-Rater Lateral Phoria score - not less than 4 nor more than 12 - Esophoria not greater than 3½ prism diopters and Exophoria not greater than 4½ prism diopters, Multiple projection Bikonometer Test score - 58 or greater; Battery no 2—General Classification Test - 46 and above, Arithmetic Test 55 and above, Ortho-Rater Visual Acuity - worse eye score - 9 or better, Ortho-Rater Vertical Phoria score - not less than 4 nor more than 7 and Hyperphoria not greater than ½ prisms diopters, Ortho-Rater Lateral Phoria score - not less than 4 nor more than 12 and Esophoria not greater than 3½ prisms diopters and Exophoria not greater than 4½ prisms diopters, Ortho-Rater Depth score - 5 or greater. On the basis of research it was recommended that either Battery 1 or Battery 2 at the cut-offs listed above be combined with the following existing requirements: Interpupillary distance - not less than 60 mm nor more than 70 mm; emotional stability and calmness under stress; quick reactions; not over 30 years of age; and interest on the part of the candidate and desire to be trained as a Fire Controlman(O).

PB 18679. BIJOU, SIDNEY, W. ed. The psychological program in AAF convalescent hospitals: Preliminary draft. (AAF Aviation Psychology Program Research Rept 15) Feb 1946. 363 p. Price: Microfilm-$4.00 - Photostat-$25.00
The mission of the convalescent hospitals is convalescent orientation, initial evaluation, progress evaluation, counseling, and research on psychological problems associated with convalescent activities. Psychological Research included developing of criteria against which tests and procedures could be evaluated, constructing and validating tests, and judging effectiveness of the procedures. Tests and measurements are discussed rather fully. Examples are given in Appendix C. and reports and forms in Appendix A. Many tables and charts and definitions of Rorschach symbols and terms are included.

PB 18677. CARTER, LAUNOR F. and others. Psychological research on navigator training: Preliminary draft. (AAF Aviation Psychology Program Research Rept 10) Dec 1945. 292 p. Price: Microfilm-$3.00 - Photostat-$30.00
Development of objective techniques for measuring navigation skill included the development of a series of ground measures and aerial measures of proficiency and the evaluation of their use. Techniques of selection and instruction of students, and the selection and evaluation of instructors, including the development of criteria of teaching performance are all treated fully. Numerous data tables, photographs, a glossary of technical terms, and an index complete the volume.

PB 18681. DAVIS, FREDERICK B. The AAF qualifying examination: Preliminary draft. (AAF Aviation Psychology Program Research Rept 6) Feb 1946. 349 p. Price: Microfilm-$3.50 - Photostat-$24.00
Development and research work by the AAF Psychological Research Units on the Qualification Examination, the most important single examination used by the AAF during World War II. Examination is made of the principles underlying the construction and modifications of the test forms, and the uses of the examination. Development of verbal tests, information tests, practical judgment and reasoning tests, mechanical comprehension tests and perceptual tests, is taken up in detail, and findings on each are summarized. This report has value as a guide to methodology in the field of psychometrics. Data tables and charts, curves and photographs, and a subject index are included.

PB 18687. FRANZEN, RAYMOND and MCFARLAND, ROSS, A. Detailed statistical analysis of data obtained in the Pensacola study of naval aviators. (CAA Div of Res Rept 41) Jan 1945. 51 p. Price: Microfilm - $1.00 - Photostat - $4.00
Presentation and detailed discussion of the statistical analysis of psychological and physiological test data is given in this report submitted by the Committee on Selection and Training of Aircraft Pilots, National Research Council. Two samples of subjects were employed in this particular investigation-(1) 10 officers and college graduates, and (2) high school graduates and those who had had an additional two years of college work. The following topics are among those discussed: The reliability of the samples, intercorrelation of nine psychological and phychomotor tests, comparison of specific criterion groups and the total population, and comparison of washouts for inaptitude and all cadets on fourteen tests of the second group. Tables of data are presented. See PB 18683 for final report on this investigation.

PB 18682. GIBSON, JAMES J., ed. Motion picture testing and research: Preliminary draft. (AAF Aviation Psychology Program Research Rept 7) Feb 1946. 314 p. Price: Microfilm-$3.50 - Photostat-$21.00
Research on the utilization of the motion picture medium for purposes of psychological testing and examining in the AAF, and on the problems of administering and scoring motion picture tests. Additional teaching problems, such as the presentation of films to groups who view it from various angles, and the techniques of teaching with the film medium, are treated in a general way that will be of interest to psychologists and educators. Some unusual problems, such as the representation of 3 dimensional space by pictures, are brought out. Appendix gives a model lecture to accompany a training film and a list of psychological test films. Tables, charts, graphs, and photographs are included.

PB 18332. IMUS, H. A. Manual for use in the selection of fire controlmen (O). (Applied Psychology Panel: Selection and training of rangefinder and radar operators. Memo 8). (Stereoscopic rangefinder operators). (OSRD Rept 4050. NRC Applied Psychology Panel Rept 332) Aug 1944. 101 p. Price: Microfilm-$1.50 - Photostat-$7.00
This report consists of a manual for use in the selection and classification of Naval personnel for training as stereoscopic rangefinder operators. Only men who meet specified qualifications are sent to the Vision testing center. The manual is concerned with this testing. It contains directions for the organization, equipment and procedure of a testing unit in a Naval Training Center or Naval Receiving Ship. Detailed instruction for the administration of the various tests and for the reporting of results are also presented. The three types of equipment used in testing were: (1) the Ortho-rater to test visual acuity and heterophoria; (2) the interpupillometer; and (3) the multiple projection likonometer. Photograph, diagrams and rating card.

PB 18676. JOHNSON, A. PEMBERTON and KEMP, EDWARD H. Psychological research on bombardier training: Preliminary draft. (AAF Aviation Psychology Program Research Rept 9) Jan 1946. 353 p. Price: Microfilm-$4.00 Photostat-$24.00
A section on the historical background of bombing and bombardier training, precedes the discussion of the development of psychological criteria for the selection and training of AAF bombardiers. Selection of instructors and a survey of instructor proficiency, together with research on the development and administration of tests, on the ground and in flight, have all contributed to the development of standardized bombardier training. Samples of Bombardier Phase Check and Bombardier Proficiency Tests, numerous data tables and charts, and photographs are included.

PB 18684. JOHNSON, H. M. and others. On the actual and potential value of biographical information as a means of predicting success in aeronautical training. (CAA Airman Development Div Rept 32) Aug 1944. 53 p. Price: Microfilm - $1.00 - Photostat - $4.00
This is a report of a study of the value of intercorrelated items of biographical information, compiled from medical

and training records of 480 students at the U. S. Naval Air Station, Pensacola, Florida, as predictors of eventual success or failure in the course, and also as predictors of velocity in learning. The value of the tests in selecting out the slow learners was found to be considerably less than for selecting potential failures. The analysis disclosed that there is only a very slight tendency for students who require extra time in the earlier stages to require more extra time than the average students in later stages. This report is one of a series growing out of the Pensacola project. See PB 18683 for final summary report and PB 18687 for detailed statistical analysis of data obtained in this study.

PB 18322. KNAUFT, E. B. The accuracy and precision of student operators' zero-sets on the mark 4 radar. (Applied Psychology Panel: Selection and training of fire controlmen (R) Rept 4). (NDRC Applied Psychology Panel Rept 189. OSRD Rept 3723) May 1944. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
This report presents information concerning the accuracy and precission with which 92 student operators in various stages of training made zero-sets on the mark 4 radar by a standardized procedure. It was found that: (1) The median error of student operators' zero-sets does not differ significantly from an error of zero (no error); (2) advanced student operators do not make significantly smaller errors in zero-set than beginning students, but the advanced students' zero-sets are less variable than those of the beginning students, and the advanced students require about 10 minutes less time to make a series of 5 zero-sets than do beginning students; (3) although statistically significant individual differences in students' median zero-sets are demonstrated, the differences are so small they have no practical significance in the operation of the mark 4 radar set. Fify percent of the differences in making zero-sets is only 50 yards. These results indicate that student radar operators make the zero-set with satisfactory accuracy and precision and that there are no changes necessary in present training methods as shipboard procedures for this adjustment.

PB 18321. KNAUFT, E. B. The precision of internal adjustment settings of the mark 42 rangefinder. (Applied Psychology Panel: Selection and training of fire controlmen (R) Rept 3) (NDRC Applied Psychology Panel Rept 127. OSRD Rept 3618) Apr 1944. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
The internal adjustment of the stereoscopic rangefinder is of primary importance in obtaining accurate range readings. Although experienced rangefinder personnel consider that a series of internal adjuster settings should have a spread of less than 1 UOE with no experimental studies have been undertaken to determine the precision with which Naval Personnel actually make these settings. The research was undertaken to determine the range of internal adjuster settings made by student rangefinder operators using the usual stereoscopic methods. It was found that 18 advanced rangefinder students made a series of five internal adjuster settings in the course of routine operations with an average range of 2.50 UOE and an average standard deviation of 1.10 UOE. To ascertain whether students make more precise readings in an experimental situation where greater care was used in recording the settings, six men made a series of stereoscopic internal adjuster settings. Although the mean range and mean standard deviation of this experimental group of six men were less than the same measures for the 18 men, a significant difference was not demonstrated.

PB 18680. LEPLEY, WILLIAM M. Psychological research in the theatres of war: Preliminary draft. (AAF Aviation Psychology Program Research Rept 17) n.d. 372 p. Price: Microfilm-$4.00 - Photostat-$25.00
Report on the activities of 4 psychological research detachments sent into the theatres of war to gather combat criterion data against which to validate the tests and procedures of the Selection and Classification Program, and to collect information on the requirements of the tasks of combat airmen, in order to keep training standards space with requirements. There is a special chapter on the measurement of fighter pilot proficiency in relation to the prediction of fighter combat proficiency and the result of fatigue factors in long range missions. The development of proficiency tests for air crew specialization, including the development of lead crew aptitude tests for the use of theatre personnel, is discussed. Numerous data tables and charts are included.

PB 18360. LINDSLEY, DONALD B. and others. The effect of extraneous illumination upon detection of signals on an A-scan oscilloscope. (Allied Psychology Panel: Selection and training of oscilloscope operators. Research Rept 13). (NDRC Applied Psychology Panel Rept 336. OSRD Rept 4264) Oct 1944. 14 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report is concerned with a study of the effect of extraneous illumination on the detection of signals of different amplitude on an A-scan oscilloscope. Adding illumination to the scope face produced neither improvement nor deterioration of signal detection ability.

PB 18335. LINDSLEY, DONALD B. and others. Experiments in training radar operators in visual code reception. (Applied Psychology Panel: Selection and training of radar operators. Research Rept 16). (NDRC Applied Psychology Panel Rept 477. OSRD Rept 4811) Mar 1945. 19 p. Price: Microfilm-50¢ - Photostat-$2.00
According to a new program, radar operators will be required to read International Morse Code presented visually. The Bainbridge experiment showed that radar operators trained in code reception on blinker lights transferred readily to reception of code on oscilloscopes. This report describes some of the results of the Bainbridge experiment and presents the data in tabular form. A list of references is appended to the report.

PB 18362. LINDSLEY, DONALD B. and others. Factors determining accuracy of reception of oscilloscope code. (Applied Psychology Panel: Selection and training of radar operators, Research Rept 18) (NDRC Applied Psychology Panel Rept 533. OSRD Rept 5280) Jun 1945. 30 p. Price: Microfilm-50¢ - Photostat-$2.00
The experiments described in this report were conducted to determine the optimal code characteristics for accuracy of reading oscilloscope code. The study was designed to provide answers to the following questions: (1) With what dot-to-dash ration can the code be most accurately read; (2) At what speed can the code be most accurately read; (3) Is there any difference in the accuracy with which width- and amplitude-modulated signals can be read. (4) How accurately can two- , three- , and four-letter code groups be read. (5) Does the presentation of repeated two-letter code cycles lead to inaccuracy of letter grouping. (6) How much re-training is required when operators skilled in auditory code reception are shifted to oscilloscope code.

PB 18361. LINDSLEY, DONALD B. and others. Memorandum on recommendations for the use of Foxboro Trainer (BC-968). (Applied Psychology Panel: Selection and training of oscilloscope operators. Memorandum 6). (NDRC Applied Psychology Panel Rept 66. OSRD Rept 3103) Dec 1943. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
An earlier study in the project relative to selection and training of oscilloscope operators (PB 18365) had been concerned with the study of the Foxboro Trainer as a training device for learning to track by means of pip-watching. This memorandum is concerned with the following: the problem of putting the trainer into operation; calibrating the trainer so that Veeder scores may be translated accurately into average degrees of error; operation; and motivation.

PB 18334. LINDSLEY, DONALD B. and others. A radar trainer and flash reading method for operators of the plan position indicator. (Applied Psychology Panel: Selection and training of oscilloscope operators. Research Rept 14). (NDRC Applied Psychology Panel, Rept 409. OSRD Rept 4489) Dec 1944. 18 p. Price: Microfilm-50¢ - Photostat-$2.00

This report is concerned with an optical mechanical radar trainer and a flash reading method of training in plot reading and target location are described. The trainer simulates the scope presentation of the Plan Position Indicator and momentarily flashes target echoes or signal blips whose locations may be read in terms of either polar or grid coordinates. The flash-reading method stresses speed and accuracy of performance and is organized so as to train the radar operator and plot reader to perform at levels of proficiency expected in actual combat operation. The trainer and flash reading method permit standard conditions of training and objective methods of scoring proficiency during training. Experimental studies of the use of the trainer and flash reading methods are reported. Sixty men were trained in reading blip locations for ten days and showed an average improvement in accuracy of approximately 100 per cent. Learning curves show that both good and poor operators make marked improvement with training. The method is shown to have good reliability as a performance measuring and training device. Performance on the trainer shows fairly high correlations with oscilloscope operator tests.

PB 18361. LINDSLEY, DONALD, B. A study of performance under speed stress. (NDRC Applied Psychology Panel 609; Informal Memo 28) Sep 1945. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
This memorandum records the results of an attempt to measure the effect of artificially induced stress on performance. A reporting test, which required rapid discrimination and counting of figures in a series of circles resembling oscilloscope screens, was used. In terms of the experiment, it appears that there may be two reactions to speed stress: (1) an increase in speed and errors with relative inefficiency, and (2) stable performance and efficiency with little increase in speed and errors. The results suggest that individuals showing the latter type of reaction constitute a small group and might be recommended for critical tasks where errors may be expensive in personnel and equipment. Individuals whose reactions are of the former type might be used for tasks emphasizing speed but not requiring great accuracy.

PB 18364. LINDSLEY, DONALD B. and others. A study of the SCR-584 basic trainer as a tracking device for learning range tracking. (Applied Psychology Panel: Selection and training of oscilloscope operators. Research Rept 7). (NDRC Applied Psychology Panel Rept 120. OSRD Rept 3344) Feb 1944. 15 p. Price: Microfilm-50¢ Photostat-$1.00
This report covers an experimental investigation of the use of the SCR-584 basic trainer designed in the Radiation Laboratories of the Massachusetts Institute of Technology. The trainer is a light-weight, mechanical optical device which simulates the J-scan, 2000 yard range scope of the SCR-584 radar set. The experiment was designed to determine the value of the trainer as an aid in improving tracking ability. It was designed to find the degree of skill obtainable by the uninitiated subject at various stages of practice. Test results for the tests are given in tables and graphs.

PB 18363. LINDSLEY, DONALD B. and others. Use of the Philco trainer in the training of A-Scan oscilloscope operators. (Applied Psychology Panel: Selection and training of oscilloscope operators. Research Rept 3). (NDRC Applied Psychology Panel Rept 37. OSRD Rept 2096) Oct Oct 1943. 27 p. Price: Microfilm-50¢ - Photostat-$2.00
The Philco trainer was designed to feed signals into the actual indicator units of SCR 270-71 radar equipment, but may be readily adapted for use with other types of A-Scan radar. It may be made to control as many as twenty oscilloscope units, producing simultaneously on the screen of each a variety of synthetic target representations as well as other conditions which closely simulate operation of the actual equipment in the field. By means of controls mounted on the panel of the trainer it is possible to produce upon the screen of each oscilloscope the following: (1) a main pulse; (2) one to three target echoes variable in height, width, "bobbing", and range; (3) baseline noise or "grass"; (4) interference; and (5) different rates of azimuth scanning or echo maximization. The purpose of this study was: (1) To determine the effectiveness of the Philco Trainer as a training device; (2) to evaluate the effect of training on proficiency in determining azimuth by judging maximization of echoes, ranging, and detection of minimal target echoes; (3) to determine the length of training in order to reach a given level of proficiency; and (4) to determine the consistency of performance. A summary statement made at the conclusion of the test was that the effective use of the trainer seemed to be contingent upon giving students a proper understanding of the elements of the task as well as their significance, accurate measurement of performance and providing students with a knowledge of their daily performance. Tables and graphs record scores.

PB 18336. LINDSLEY, DONALD B. and others. Use of the PPI flash-reading trainer in training navy search-radar operators. (Applied Psychology Panel: Selection and training of radar operators. Research Rept 17). (NDRC Applied Psychology Panel Rept 478 OSRD Rept 4831) Mar 1945. 12 p. Price: Microfilm - 50¢ - Photostat - $1.00
The trainer discussed in this report was described in full in an earlier report. As a result of the additional use the following generalizations and recommendations were made: (1) The PPI Flash-Reading Trainer provides standardized scope reading situations which can be scored accurately and objectively; (2) the best use of the trainer is obtained when the scope markings are made to simulate the bearing and range scales of an actual radar; (3) significant increases in scope reading ability occur with training by the Flash-Reading method; (4) both individuals and classes may be differentiated reliably by means of the trainer scores; (5) evidence was obtained that poorer scores are made on the trainer by classes which are poor in operating actual radar gear; (6) training in battlephone procedure and reporting can be coordinated closely with the scope reading training in a way that duplicates many of the elements of the combat situations; and (7) maximum use of the trainer is secured when it is used as a selection device for eliminating poor scope readers and as a training device for giving concentrated practice in PPI reading.

PB 18359. LINDSLEY, DONALD B. and others. A validational study of oscilloscope operator tests. (Applied Psychology Panel: Selection and training of oscilloscope operators. Research Rept 10). (NDRC Applied Psychology Panel Rept 197. OSRD Rept 3712) Apr 1944. 13 p. Price: Microfilm - 50¢ - Photostat - $1.00
Thirteen oscilloscope operator tests were given in eight operating stations under Army Air Forces Tactical Center, Orlando, Florida. The Plot Reading, Scale Reading and Polar-grid Coordinate tests were found to be good predictors of performance in Early Warning and Chain Home Link stations. Plot Reading, Scale Reading, and Course Location tests proved to be exceedingly good predictors of performance in the Ground Control Interception stations. The Coordinate Reading and Ratio Estimation tests have possible application as achievement tests.

PB 18683. MCFARLAND, ROSS A. and FRANZEN, RAYMOND. The Pensacola study of naval aviators: Final summary report. (CAA Div of Res Rept 38) Nov 1944. 141 p.
Price: Microfilm - $1.50 - Photostat - $10.00
In 1939, the Committee on Selection and Training of Aircraft Pilots undertook a major study in the selection and training of aircraft pilots at the Pensacola Naval Air Station. The history and major findings of this study are summarized in this report, except for the investigation of biographical items as predictors, which is given in a seperate report. (See PB 18684). This investigation involved the administration of a large number of psychological and physiological tests to approximately 1,000 cadets and officers in order to determine whether certain of these tests would differentiate the successful pilots from the washouts. A description of the experimental procedure, the psychological and physiological tests and measures used, and the groups em-

ployed in the investigation are presented. Only such general statistical data as are necessary for an evaluation of these instruments as predictors of flight success are discussed. For detailed statistical analysis of data obtained, see PB 18687.

PB 18691, PB 18690, PB 18688. NATIONAL RESEARCH COUNCIL. COMMITTEE ON SELECTION AND TRAINING OF AIRCRAFT PILOTS. Report on C.A.A. -National Testing Service: First phase, June 20, 1942 - Aug 2, 1942; Phase II to IV, Aug 3, 1942 to Jan 31, 1943; and Summary of test results and comparisons with success in flight training. (Civil Aeronautics Administration. Div of Research Repts 9, 19, and 39) PB 18691 (First Phase), Jan 1943. 34 p. Price: Microfilm-50¢ - Photostat-$2.00. PB 18690 (Phase II to IV) Aug 1943. 28 p. Price: Microfilm-50¢ - Photostat-$2.00. PB 18688 (Summary), Nov 1944. 101 p. Price: Microfilm-$1.50 - Photostat-$7.00
During the periods listed above screening tests were given to over 70,000 candidates for flight instruction; the basic tests used were: (1) Inventory of personal data for prospective pilots; (2) mental alertness test; and (3) a mechanican comprehension test. Details on the distribution of passers and failers in relation to education, geographical location, age, previous flight training, etc., are discussed and presented in tabular and diagramatic form. The summary contains brief descriptions of the tests; analysis of the test results; an analysis of the screening battery in relation to performance in primary flight training; and tables showing distributions of tests scores, flight hours, and ages of subjects for phases I-IV; and tables for criterion study.

PB 18689. NATIONAL RESEARCH COUNCIL. COMMITTEE ON SELECTION AND TRAINING OF AIRCRAFT PILOTS. Report on C.A.A. -National Testing Service: Previous flight training and flight training preferences as related to pilot screening test scores. (CAA Div of Research Rept 30) May 1944. 73 p. Price: Microfilm-$1.00 - Photostat-$5.00
This report presents an analysis of the test results of the third phase of the C.A.A. -Nation Testing Service which gave screening tests to applicants for flight instruction. This analysis had two chief purposes: (1) To determine the extent to which applicants expressing a preference for glider training differed in their test scores from those expressing a preference for primary or secondary flight training; and (2) to analyze the ralationship of previous flight training to these test scores. It was found that there was a very large degree of overlap in the test scores of all groups. In view of such overlap, such differences as were noted have little practical significance.

PB 18686. OLBERT, HENRY S. and others. "Ability-to-take-it" tests: Examiner differences and validation. (CAA Div of Research Rept 49) Oct 1945. 43 p. Price: Microfilm-50¢ - Photostat-$3.00
The present study, which was undertaken to validate two tests measuring resistance to pain and fatigue as predictors of success in flight training, revealed such large examiner differences that satisfactory validation was not possible. This report therefore places major emphasis on the analysis of differences in scores obtained by five examiners in administering two tests of resistance to fatigue and pain. The report concludes with validation data for the cases tested by two examiners. The general conclusion of the study was that "ability-to-take-it" tests could not predict the criteria employed in elimination from flight training. Instructions for administration of two tests are given in appendices - hand dynamometer test in Appendix A and constant stimulus shocker in Appendix B.

PB 15825. SONDERMAN, J. B. Validation of personnel specifications for gun stations. (NDRC Applied Psychology Panel. Project M-116a. Informal Memo 2) Sep 1945. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
This study was undertaken by Leland Stanford Junior University, under NDRC contract, to obtain data on the validity of the personal characteristics which have been outlined for use in assignment of enlisted men to gun stations. Report discusses the development and reliability of the criterion, the statistical procedures used, and the results obtained. Also presented are tables showing the correlations between the criterion and Selectometer scores.

PB 15172. U. S. WAR DEPARTMENT. Reconditioning training program for ASF convalescent hospitals, Z. I. Jun 1945. (Army Service Forces Manual M 7) Jun 1945. 90 p. Price: Microfilm-$1.00 - Photostat-$6.00
The purpose of this program is to serve as a guide for establishing appropriate courses consistent with the medical mission in convalescent hospitals, Z.I. Courses offer the opportunity to patients to participate in pretechnical and exploratory shop activities for avocational purposes, and to try out and develop skills that may serve as a basis for useful future assignments in the Army or for future training in civilian pursuits. They also provide patients with occupational information and pre-vocational guidance. Scope of courses, text references, method of presentation, and hours of instruction are tabulated. Courses covered include agriculture, automotives, business education, electricity and radio, graphic arts, metal working, woodworking, and various miscellaneous occupations.

PB 18678. WICKERT, FREDERIC, ed. Psychological research on problems of redistribution: Preliminary draft. (AAF Aviation Psychology Program Research Rept 14) Feb 1946. 457 p. Price: Microfilm-$5.00 - Photostat-$31.00
The main function of the redistribution station was to evaluate qualifications of combat returnees, and to recommend a suitable assignment for them, by means of medical examinations and classification interviews. The use of psychological tests as an aid in judging ability, knowledge and attitudes, and to identify men needing special study, was developed. Tests were set up to discover combat leaders and instructors, and psychological studies of anxiety reaction to combat were made. Appendices give examples of forms, tests, data assembled, glossary of technical terms and tables.

PHOTOGRAPHIC AND OPTICAL GOODS (INCLUDING PHOTOGRAPHIC PROCESSING)

German

PB 14965. ASCHENBRENNER, C. Luftbildmessung (Measurement of aerial photos). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik V A 2) (ALSOS Mission, Klotter File 11 E) Feb 1938. 14 p. Price: Microfilm-50¢ - Photostat-$1.00
The geometric basis for the measurement of aerial photos is discussed. The topography of the land, the camera and phototechnics are also treated. Single shots, series shots and spatial reconstruction are considered. Pictures, graphs, bibliography.

PB 14964. SCHMIESCHEK, U. Photographische emulsionen und filter für luftbildzwecke (Photographic emulsions and filters for aerial use). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik V A 1) (ALSOS Mission, Klotter File 11E) Oct 1937. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
The requirements of aerial cameras are considered. The relationship between picture clarity and aircraft motion is discussed. So are other factors which determine quality, such as bending, refraction and diffusion of light rays. The convenience in handling and quick drying qualities are investigated. The determination of the best filter and emulsion is attempted here. The I. G. Farben emulsion is discussed as well as 32 films and emulsions, German and foreign. Tabulation of qualities of the 32 film is presented. Bibliography and graphs are included. In German.

PB 18904. SPEAK, G. S. Optical activities at Steinheil u. Söhne, München. (BIOS Final Rept 40, Item 9) Jul 1945. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
This report covers an investigation of the optical research and production, particularly of aircraft optics, of this Munich firm. It was found that the firm had conducted considerable research during the war on the coating of optical surfaces with non-reflecting films, for which three methods had been used, and on the production of partially-reflecting mirrors. Research had also been done on the production of synthetic crystals of NaCl, KBr and LiF. A number of bombsights, reflector gunsights and periscopic gunsights had been disigned and produced, but no aircraft cameras or lenses for air photography had been made. A novel method was used for focussing cameras, based on data presented in a paper by Günther Korff, of Göttingen, in Zeit.f.Inst. April, 1943. Brief details of the above activities are included, together with technical data, and photographs of the periscopic gunsights.

PB 18728. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Evaluation report, captured enemy equipment: German 1.7 meter multiplex frame. (Reg 3248 and 3315) Mar 1946. 3 p. Price: Microfilm-50¢-Photostat-$1.00
This report describes a captured German 1.7 meter multiplex frame which is a component of German multiplex equipment used for compilation of topographic maps for aerial photography. The equipment is practically identical with the U. S. Army Multiplex Frame.

PB 18692. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Evaluation report, captured enemy equipment: German slotted template cutter. (EB Reg 3250) Mar 1946. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes a captured German slotted template cutter, scale rationing and pleon type, which was manufactured by Zeiss - aerotograph, G.m.g.H., Jena, Germany. There is no comparable item of U. S. equipment. The standard slot cutter is of very simple construction with no provision for automatic scale changing. Photograph.

PB 18727. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Evaluation report, captured enemy equipment: German stereocomparator. (Reg 3295) Mar 1946 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes a captured German stereocomparator manufactured by Photogrammetrie, G.m.b.H., Munich, Germany and Steinheil, Munich, Germany. The stereocomparator is essentially a rectangular coordinate and stereoscopic parallax measuring device, which was designed and constructed to be used in map compilation from aerial photography obtained with a nine-lens camera, also developed by Photogrammetrie. No comparable item of U. S. equipment exists. Photograph.

Japanese

PB 18651. ABBOTT, H. L. Japanese ordnance equipment: Japanese elbow telescopes. (U. S. Army Tech Intelligence Center, Tokyo, Rept 114) Dec 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes the 4 x 15° Japanese elbow telescope and the tracking telescope for AA directors. Photographs of both telescopes are included.

PB 18644. ABBOTT, H. L. and BARAX, HARRY. Japanese Ordnance equipment: German telescopic sight for the Japanese 88 MM A.A. gun. (U. S. Army Tech Intelligence Center, Tokyo Rept 121) Dec 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes a German telescopic sight, manufactured by Carl Zeiss, which was adopted by the Japanese for the 88 mm A.A. gun. There is a photograph of the sight.

PB 18656. ABBOTT, H. L. and BARAX, HARRY. Japanese ordnance equipment: Japanese tracking binoculars. (U. S. Army Tech Intelligence Center, Tokyo Rept 111) Dec 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes a 10x5° tracking binocular which was probably used with 4.5 meter base height finder. There is a photograph.

PB 18650. ABBOTT, H. L. and others. Japanese ordnance equipment: Japanese panoramic sights. (U. S. Army Tech Intelligence Center, Tokyo, Rept 115) Dec 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes two Japanese panoramic sights, the 4 x 10° for fortification guns, and the 3 x 13°. Photographs of both sights are given.

PB 18657. BARAX, HARRY. Japanese Ordnance equipment: Japanese B.C. telescope 10 x 4.5°. (U. S. Army Tech Intelligence Center, Tokyo, Rept 110) Dec 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
This binocular telescope, manufactured by the Nikko Optical Company is equipped with red eye filters, sun shades, horizontal level, and scales for both horizontal and vertical traverse. The following data is given: Power - 10; field of view - 4.8; diameter of objective lens - 54 mm; diameter of ocular lens - 15mm; diopter scale - -5 to +5; interpupilary scale -58mm to 75 mm. Two photographs of the telescope are given.

PB 18646. BARAX, HARRY. Japanese ordnance equipment: Japanese telescopic sights. (U. S. Army Tech Intelligence Center, Tokyo, Rept 119) Dec 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes three Japanese telescopic sights: 1B, 4 x 7°; 2.5 x 13°; and type 97, 4 x 14°. Photographs are included.

PB 18645. BARAX, HARRY and GERLACH, J. C. Japanese ordnance equipment: Japanese A.A. binoculars. (U. S. Army Tech Intelligence Center, Tokyo. Rept 120) Dec 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes two Japanes binoculars, the AA Spotting Binocular type 89, 20x3° and AA Binoculars 10x6°. Photographs are included.

PB 18649. GERLACH, JOHN C. Japanese ordnance equipment: Japanese collimator sight. (U. S. Army Tech Intelligence Center, Tokyo, Rept 116) Dec 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
The report describes the Japanese collimator sight and provides a photograph of the equipment.

United States

PB 18330. ELLSOW, D. G. and IMUS, H. A. Memorandum on the construction and calibration of the NDRC interpupillometer. (Applied Psychology Panel: Selection and training of fire controlmen (R) Memo 4). (NDRC Applied Psychology Panel, Rept 185. OSRD Rept 3797) Jun 1944. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes the design and construction of the interpupillometer developed by Project N-114; NDRC. There are sketches showing the interpupillometer in position for operation, eye-piece assembly details, front and rear views, and carrying case details.

PB 18329. KNAUFT, E. B. The precision of internal adjustment settings by student operators and experienced operators on stereoscopic rangefinders. (Applied Psychology Panel: Selection and training of rangefinder and radar operators. Rept 9). (NDRC Applied Psychology Panel Rept 274. OSRD Rept 3997) Aug 1944. 13 p. Price: Microfilm-50¢ - Photostat-$1.00

This report is a follow up and extension of a previous study on the precision of internal adjustment of the stereoscopic range finder as made by student operators (PB 18321). When records of series of internal adjustments made by such operators were analyzed it was found that: (1) Eighty-one student operators of Mark 42 rangefinders attained a mean range or spread of internal adjustment settings of 2.27 UOE; (2) learning as measured by an increase in precision in making internal adjustments, occurred from the first to sixth week of training on Mark 42 range finders; (3) twelve experienced shipboard rangefinder operator, each making from sixty-three to seventy-five series of internal adjustment settings, obtained a mean range of 1.37 UOE; and (4) the revised procedure in making internal adjustment enabled the student operators to increase the precision with which they made the setting.

PB 18374. LINDSLEY, DONALD B. and others. Comparison of range tracking methods: tracking to a fixed hairline versus tracking to a rotating hairline. (OSRD Rept 3858; NDRC, Applied Psychology Panel 234; Research Rept 11) July 1944. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
This report covers experimental investigations involving comparisons of tracking with two methods of presentation on the J type oscilloscope used in range tracking on the SCR-584 set. One method (now employed on the 584) involves the adjustment of a rotating pip to a rotating hairline; the other is an arrangement by which a moving pip is adjusted to a fixed hairline. The study demonstrated the superiority of the method of tracking to a fixed hairline over that of tracking to a rotating hairline but the degree of superiority was not believed to be sufficient to warrant a major change in the design of the range tracking of the SCR-584.

PB 18615. MANILDI, J. F. and TAYLOR, D. D. Magnetic design data for aircraft. (AAF Tech Rept 5300) Oct 1945 162 p. Price: Microfilm-$2.00 - Photostat-$11.00
A report on the results of investigating compass deflections produced by electromagnetic and ferromagnetic disturbances in aircraft. A theoretical discussion on compass deviation as induced by horizontal and vertical components of D.C. wires is supplemented by tables and graphs giving directly the compass deviation in degrees per amp (for H = .18 oersted) and the value of the horizontal field of the wire in milligans per amp. Design data for neutralization of magnetic fields and methods and equipment for demagnetizing are presented as are curves illustrating the permanent and induced magnetism as influenced by a simple cylindrical rod of ferromagnetic material arbitrarily oriented with respect to the compass. Photographs illustrate test equipment.

PB 13593. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS Navy aeronautical specification for adjustable polarizing filters for AN/APS-4 and AN/APS-6 indicators. (NAVAER M-704) Apr 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
Specifications for adjustable polarizing filters designed for attachment to the face of a radar indicator to facilitate the use thereof by permitting rapid easy adjustment of the amount of light transmitted from the indicator to the eye.

PB 18533. U. S. WAR DEPARTMENT. Interpretation of aerial photographs. (Tech Manual 5-346) Dec 1942. 219 p. Available from: Supt. of Docs. Govt Print. Off. price 60¢.
This manual is supplementary to FM 21-25, 21-26, and 30-21, and the knowledge of map and aerial photograph reading contained in those manuals are necessary for an understanding of this manual. Chapter I is designed to familiarize the student with the appearance of general terrain features of ground not occupied by military forces. Chapter II is concerned with teaching, interpretation of military activity as shown on aerial photographs. The manual provides a set of aerial photographs showing many varieties of terrain and many types of military activity.

PB 18699. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. Improvement of multiplex reduction printers. (Rept 872) Sep 1944. 28 p. Price: Microfilm-50¢ - Photostat-$2.00
This report covers the investigation of the illumination in the wide angle Multiplex reduction printers with a view toward possible improvement of the illumination so that suitable diapositives can be prepared from the types of negatives normally encountered in multiplex operations with greater facility than is possible with the present type of illumination. In this investigation a study was also made of diapositive processing procedures and the possibility of the inclusion of an exposure meter or other device in the reduction printer to aid in the determination of proper exposure. Illustrated with curves and photographs.

PB 18698. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Military mapping from tri-metrogon aerial photography using rectified photographs. (Rept 830) Jun 1944. 30 p. Price: Microfilm-50¢ - Photostat-$2.00
This report covers tests which were conducted using transformed and rectified Tri-metrogon photography in order to compare the quality and quantity of maps produced by these methods with those prepared by the present standard Tri-metrogon method, and in order to uncover by practical application of proposed procedures, the details upon which further attention should be concentrated in the event that sufficient advantages become apparent by these methods to warrant further development. Based on tests described in this report, it is concluded that: (a) the preparation of medium and small scale planimetric maps and charts from rectified tri-metrogon photography is practical and should result in maps and charts of better quality than those produced by present standard methods: (b) the use of the sterocomparagraph and the radical plotting device with the rectified oblique photography shows promise as a means of obtaining elevation data and for continuous steroscopic plotting in orthographic projection. Appendix A is deleted. Appendix B contains index map, diagrams, and photographs.

PB 18386. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Searchlight investigation effect of spherical aberation in metal mirrors. (Rept. 709) Feb 1943. 16 p. Microfilm-50¢ - Photostat-$2.00
This report consists of qualitative and quantitative analyses of disturbances away from the normal intensity distribution curve, produced in 60-inch diameter parabolic mirrors which deviate from the true paraboloid of revolution in the outer zones. One conclusion reached is that a mirror with a "back to back" aberration, one in which the mirror is rounder and more concave than a true paraboloid in the outer zones, will always produce throughout a limited portion of the total beam, an intensity higher than a "perfect" mirror at any cross section of the beam within this limited region. This never occurs for a mirror with "face to face" aberration, in which the mirror is flatter and less concave than a true paraboloid in the outer zones. The report contains graphs, diagrams, and tables.

STRUCTURAL ENGINEERING

French

PB 18165. BRADLEY, E. T. Inspection of NOBALL (Crossbow) Site at Villaines La Carelle, France. Map Reference Q/503026. (AAF Tech Intelligence Rept K-11) Sep 1944. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
Investigation of an underground ordnance factory site near Alencon installed deep in a gypsum mine, which had been enlarged and re-inforced with concrete. Three drawings of equipment and a drawing of the wing of a V-1 flying bomb are included. Most of the workings were destroyed by the Germans.

PB 18160. BRADLEY, E. T. Inspection of NOBALL target XI/A/18, Sottevaast, France, Map reference O/164117. (AAF Tech Intelligence Rept E-6) Jun 1944. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
Inspection of bomb launching site at Sottevaast, France, which was only about 20% completed. Large concrete buildings, with walls 16 feet thick were mainly below ground. There was no evidence of launching tubes. Suggestions for future effective bombings of these installations are given. Two drawings of the building plans, and sixteen 35 mm. photographs are included.

PB 18163. GETTE, J. O. Inspection and examination of Noball (Crossbow) Site Equeurdreville, France, Map Reference O/108245. (AAF Tech Intelligence Rept E-9) Jul 1944. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
Examination of flying bomb launching site located at the mouth of old French tunnels near Cherbourg. Site had not been recognized or bombed. It was built of heaviest concrete to resist bombings, and had storage, workshops and living quarters in the tunnels. Large drawing and 6 clear photographs are included.

PB 18161. THOMPSON, C. E. and GETTE, J. O. Inspection of NOBALL (Crossbow) supply sites. (AAF Tech Intelligence Rept E-7) Jul 1944. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Inspection of bomb launching supply sites at Bricquibec and Valognes. Both were extensively camouflaged, and in the latter stages of development. Both were probably intended for the storage and fabrication of the bombs as there were no launching ramps. Descriptions of the buildings and equipment, and 4 small photographs are given.

German

PB 14532. PILGRIM, V. Bolzenverbindungen, bolzen in holz. (Bolt connections, bolts in wood). (ALSOS Mission, Kletter File 11B) 1940. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
In this report rules are developed for the determination of strain on walls of an orifice caused by a bolt inserted in various types of wood. Results of similar investigations by German and American authors are discussed, compared and evaluated.

PB 18167. WIGGLESWORTH, T. and WILSON, W. N. Inspection of NOBALL (Crossbow) site in Germany. (AAF Tech Intelligence Rept E-22) Apr 1945. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
Inspection of an underground structure between Blerichen and Blesch, Germany. Huge tunnel 800 feet long may have been constructed as a decoy for bombing, gasoline storage, or underground factory. No evidences of launching equipment are present, though there are power, water and railroad lines. Six photographs and a complete plan are appended.

United States

PB 18479. RICHART, F E. and NEWMARK, N. M. Impact tests of reinforced concrete beams. (NDRC Armor and Ordnance Rept A-125 OSRD Rept 1105) Dec 1942. 34 p. Price: Microfilm-50¢ - Photostat-$3.00
The work described in this summary report was carried out at the Engineering Experiment Station, University of Illinois. The series of tests described were designed to determine the relative efficiencies of the various grades of reinforcing steel when used in reinforced concrete beams subjected to impact. Since this was a preliminary type of test the equipment and apparatus used in the testing is described. The following conclusions were reached: (1) It is to be expected that the effect of an impact load applied to reinforced concrete beam will depend on the velocity of impact, the energy of the projectile, and the relative masses of the projectile and the beam; (2) for impacts at low velocities, that is up to 10 or 15 feet per second the effectiveness of the reinforcement seems to depend on the yield point of the steel; (3) for velocities of about 30 feet per second or greater, when sufficient energy is applied, there seems to be a tendency toward scabbing of the concrete under the load; (4) at intermediate velocities failure of ten seems to be influenced by vibrations of the reinforcement, which causes the steel to break out of the concrete and rip away from the bottom of the beam. The final conclusion was that intermediate or hard-grade steel could be used as effectively as structural-grade steel in concrete subjected to impact. Photographs of equipment and beams; graphs of load deflection curves and charts of velocity records.

PB 18556. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. Bailey type panel crib piers. (Tech Bulletin 5-277-5) May 1945. 65 p. Price: Microfilm-$1.00 - Photostat-$5.00
This bulletin describes the construction of panel crib piers built with equipment of the fixed panel bridge, Bailey type. Panel crib piers are made of trusses with panels set horizontally or vertically and are normally braced with transoms, sway bracing, rakers, bracing frames, and tie plates as in a panel bridge. These piers are used as intermediate supports for through- or deck-type fixed bridges, as piers in barge bridges, as intermediate landing-bay piers in floating panel bridges with double landing bays, as expedient towers for various kinds of bridges, and as expedient marine piers. Drawings, photographs, diagrams, and tables.

PB 18467. WHITE, MERIT P. The limit design of structures subjected to impulsive loads - with application to military structures. (OSRD Rept 4192 NDRC Armor and Ordnance Rept A-293. Sep 1944. 40 p. Price: Microfilm-50¢ - Photostat-$3.00
In two important respects the military structures differ from structures built for civil uses: the critical loads are impulsive rather than static or slowly applied; the critical loads are applied a limited number of times. Consequently, design should be based on a dynamic analysis, and analysis should be in terms of ultimate loads. For impulsive loading, the important quantity normally is not the maximum force applied but rather the amount of energy given to the structure compared to the amount of energy the structure can absorb before collapse. In a typical structure (a simple reinforced concrete beam) the energy at the elastic limit is found by both calculation and experiment to be about 1/100 of the energy absorbed before failure. This points to the desirability of considering the plastic state in analysis. It is not proposed that smaller safety factors be used, but that if true safety factors are known, more consistent and therefore safer designs are possible with no increase in cost. Diagrams, tables, graphs.

PB 18529. WIENER, PAUL L. Modern designs for prefabricated and demountable buildings: Final report. (OPRD Res Rept 1, Project 350) Dec 1944. 99 p. Limited number available for free distribution. Thereafter, microfilm-$1.00 - Photostat-$7.00
The primary object of these studies was to produce designs of emergency structures which would effect economies in the use of critical materials, for use in conjunction with the war effort. Existing facilities for mass production of emergency structures in this country dictate the use of wood, steel, processed board, or combinations of these three elements. Various circumstances have influenced the availability of these three elements at different stages of the war. Accordingly, various designs have been proposed to match the availability of material. In addition to the arched roof structures, studies have been made of flat roof buildings, with interesting comparative results. These flat roof structures, together with applications of arched roof designs to single width buildings, provide for freedom and flexibility of interior space for a multiplicity of uses. Studies of shipping space are also included. Designs and blueprints for "ratio structures" to be used as dwellings, warehouses, etc. are shown. "Ratio structures", instead of

building from the floor up as with most systems of prefabrication, assembles the structure from the roof down. Instead of load-bearing exterior walls and partitions, it uses "curtain" walls which can be interchanged and moved about even after the building is complete. The text is printed in English and French.

PB 18475. WILBUR, JOHN B. The analysis of elastic structures acted upon by impulsive loadings. (OSRD Rept 1915. NDRC Armor and Ordnance Rept A-219) Sep 1943. 110 p. Price: Microfilm-$1.50 - Photostat-$8.00
Methods, which may be applied by an engineer with a good background in indeterminate structural analysis, are presented for analyzing elastic structures acted upon by impulsive loads. When a structure is acted upon by a pressure wave transmitted through air from an explosion nearby, only the time-force relations and not the mass and velocity of the body that applies the load enter the solution. Such a load is designated an impulsive load. The concept of dynamic load factor is developed by means of which it is possible, though consideration of the characteristic loads and characteristic shapes for the structure, to carry out an analysis for impulsive loads. Analyses are given for beams and one-way slabs of one span, for continuous beams and one-way slabs, for two-way slabs of one panel only, for continuous two-way slabs, and for the case of nonuniform mass distribution and bending stiffness. Finally, the general theory of the effect of impulsive loadings as applied to flexural members is developed in an appendix. A bibliography is also included.

TEXTILES AND TEXTILE PRODUCTS

German

PB 18433. ALUER, KARL and others. Über das dehnungsverhalten von wolle und synthetischen wolltypen. (On the elasticity of wool and synthetic wool types) (ALSOS Mission, RPR 303) Jul 1944. 14 p. Price: Microfilm-50¢ - Photostat-$1.00
Tests were conducted upon wool, viscose, and other synthetic fibers to test their elasticity and breaking point. Some discussion of the relationship between the elasticity and the breaking point is included. Ten graphs are presented.

PB 22341. BERGEN, WERNER VON. The German Army standard uniform cloth, "Einheitstuch". (QM Textile Series Rept 5) Mar 1946. 30 p. Price: Microfilm -50¢ - Photostat - $2.00
The study of captured German uniforms during the war, both of the German Army and the SS, revealed that the use of wool in the basic fabric was being progressively and drastically reduced. It was also apparent that the German conception of the camouflage color for the wool uniform was undergoing a change along with the modification of the camouflage coloring of cotton-type fabrics. The report, covering these developments, is in three sections, namely: The dyeing of the uniform fabric, the composition of the fabric, and specifications requirements on delivery acceptance, issued by German Army Supply Section, May 1940. Much of the data included is given in tabular form. Diagram of the construction of a dye house is given.

PB 18931. BURTON, A. C. Developments in protective clothing in Germany. (BIOS Final Rept 152, Items 22, 27) Jun - Jul 1945. 26 p. Price: Microfilm-50¢ - Photostat-$2.00
Although the subject of protective clothing was greatly neglected in Germany during the war, a foam protective suit and a suit for fire protection were developed. These suits, as well as flameproofing and fireproof fabrics, protective clothing against cold, water repellency and water vapor in clothing, and field testing in Germany, are described. The foam protective suit was developed for the protection of airmen and others suffering immersion in cold water. The suit is impregnated with a powder which, it is claimed, upon contact with the water, releases a stable foam which excludes further water and provides buoyance and warmth.

PB 18942. BURTON, A. C. and LAROSE, P. Textile testing in Germany. (BIOS Final Rept 178 Item 22) Aug Oct 1945. 45 p. Price: Microfilm-50¢ - Photostat-$3.00
Brief descriptions of visits to the following targets are given: I. G. Farbenindustrie, Hochst; Lehrspinnerei, Deckendorf, bei Kaslingen); Deutscher Forschungsinstitut fur Textilindustrie, Reutlingen; Vereingte Glansstoff, Wuppertal-Elberfeld; Textilforschungsanstalt, Krefeld; Textile Ausrustung Gesellschaft Schroers & Co., Krefeld; Melliand Textilberichte, Heidelberg; Forschungsinstitut fur Textilindustrie und Hohere Fachschule fur Textilindustrie, Hohenstein Schloss, bei Bonningheim; Textillaboratorium "De Voorsorg", Enschede, Holland; Comptoir des Textiles Artificiels, Paris, France. Although some of the textile testing methods used in Germany are different from those used in America and although some new developments had taken place during the war, it was concluded that the state of their testing procedure as a whole was not in advance of that used in the United States or Canada, and in some respects it may be considered as not quite of the same standard. Testing methods are discussed and sketches and photographs of machines used are shown under the following headings: Abrasion machines (wear testers), yarn uniformity, breaking strength testers, thermal insulation, air permeability, viscosimetry and rayon quality control, analysis of dissolved cellulose, water repellency, shrinkage, soil removal, dye fastness, and miscellaneous tests and equipment.

PB 18788. GEIER, ERNEST C. Rayon weaving and throwing in Germany. (FIAT Final Rept 554) Dec 1945. 29 p. Price: Microfilm-50¢ - Photostat-$2.00
This report on the rayon weaving and throwing industry in Germany concerns itself chiefly with the usage and application of filament yarns, and does not embrace the staple or spun rayon field. Descriptions are given of the following novel developments or methods which merit attention: 1. The double-twist spindle (Doppel Draht) specifically designed for high twist crepe throwing (Barmag); 2. the hollow-spindle used as a combination up-twister-doubler (Kuag); 3. the three-deck up-twister for rayon or silk crepe yarns (Hanel & Company); 4. the loom without a superstructure built by Ruti, Klaag, Saurer; 5. the plastic heddle to replace the steel heddle (Fantin & Guillaume); 6. the Kreuzwalken apparatus to increase density (picks) in fabrics (Sächsische Webstuhlfabrik); 7. the printing of aviators' maps particularly for night flying printed in a textile print shop (Verseidag); 8. the continuous process of cupra yarn from spinnerette to warp beam or spools (J. P. Bemberg). The appendices contain drawings and diagrams of some of these novel developments and methods, a price list for German rayon yarn for November 1945, a description of Patent No. 740024, "Method of producing durable, especially multi-colored maps", and a description of "Wollin" fabrics as adopted for civilian purposes. A list of the plants visited is included.

PB 13431. GEIER, ERNEST C. Velvet and plushes, J. Girmes & Company, Cmdt near Krefeld. (FIAT Final Report 661). Dec 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
The object of the work covered by this report was to obtain detailed and specific data regarding special pile fabrics made for war purposes and their evaluation for civilian uses. J. Girmes is one of the largest and best equipped pile fabric manufacturers in Germany. This plant was the main source for the "Wollin" fabric used in the German emersion suit. They also manufactured a second type of "Wollin" used for vests for troops at the Russian front.

PB 7907. HILL, ALLAN C. and CAMPBELL, W. BOYD. Westfälische zellstoff A. G: Wildhausen mill. (BIOS Final Rept 56) n.d. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
The object of this visit was to obtain detailed information on the manufacture of high alpha sulphite pulps, and on the disposal of the waste sulphite liquor. This plant produces "Alphalint", a highly purified alpha pulp from beech wood, used for manufacture of cellulose acetate and cuprammonium rayons.

PB 17549. HOLGATE, B. A. Investigation of the German narrow fabric industry. (FIAT Final Rept 462) 1945. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
The narrow fabric industry of Germany consisted of about 1100 to 1200 plants, 50% of which were located in the Ruhr section. The plants inspected are listed in the appendix and are representative of the industry. The greatest asset of the industry was the availability of adequate cheap labor. The Guido-Horn braider was of importance due to its high rate of production and of its relatively low maintenance cost.

PB 18912. LAROSE, P. and BURTON, A. C. Lehr Spinnerei (Model spinning mill) Denkendorf. (BIOS Final Rept 88, Item 22, 31) Aug 1945. 31 p. Price: Microfilm-50¢ - Photostat-$3.00
The purpose of this model spinning plant, founded in 1936 for the benefit of the industry and financially supported by it, was to try out new ideas on a plant scale. During the war most of the work was carried on with rayon. Many improvements in machinery have been made including those concerned with drafting. An outstanding development is the use of machine belting of vinyl plastic instead of leather. The feature of the drafting (3-rollers) was a self-aligning pendulum suspension. An explanation of the action of the pendulum suspension with sketches is presented in Appendix 1. Theoretical research resulted in obtaining a formula for the preparation of fibers giving the maximum elongation for different values of the draft-ratio, and the ratio of the fiber length to the distance between the rollers. A summary translation of the best proof of this formula (Denkendorf Report IIa, p. 37-49, 1944, "The elongation of the fiber in relation to the draft ratio and the distance between the rollers"), accompanied by a table for various drafting ratios and distances between rollers, is given in Appendix 2. Experimental research has also been done on the optimum draft-ratio. An apparatus was used that recorded, on an ink writing milliammeter recorder, the tension on the fibers between the rollers. This apparatus was applied to the actual spinning frame. Records have been obtained of the tension and the frequency of breakage of ends, with different draft-ratios. The translation of a sample report published by the Lehrspinnerei ("Phenomena during drafting with the ring spinning frame", Denkendorf Report I. E., p. 12) is given in Appendix 3. The photographs and graphs accompanying this article will not reproduce well.

PB 18932. LAROSE, P. and BURTON, A. C. Textilforschungsanstalt, Alderstrasse, Krefeld. (BIOS Final Rept 155 Item 22) Sep 1945. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
The laboratory is engaged principally in research and testing of rayon fibers. It is supported by the industry, chiefly spinners and weavers, and not by the state. The following work of the Institute is discussed: Effect of processing on properties of fibers, abrasion tests, viscosity measurements, yarn uniformity tests, and miscellaneous tests. Chief interest has been on changes in properties of fibers as a result of various chemical treatments and also during use.

PB 18933. LAROSE, P. and BURTON, A. C. Vereinigte Glanzstoff G.m.b.h., 14-16 Amerschule Strasse, Elberfeld, Wuppertal. (BIOS Final Rept 156 Item 22) Sep 1945. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
Only offices and laboratories were located at Elberfeld, Wuppertal, the plants being at Oberbruck, Oberaburg, Kelsterbach and Kassel. This company produces rayon by the viscose process and also controls the J. P. Bemberg Co., and has a half interest in the Glanzstoff (Courtald's) at Koln. Their specialty is staple fiber for spinning on the cotton system. Although normally the pulp was obtained from Sweden and Norway, German pulp made mostly from beechwood had to be utilized during the war. The authors of this report state that the main advantage of Bemberg rayon over viscose rayon lay in the fineness of the filament which made Bemberg particularly suitable for hosiery. There was no real difficulty in making fine denier viscose rayon, but the large production machinery developed in the viscose industry was not suited to the production of Bemberg which is generally carried out at a lower rate. The output of Bemberg in all the plants controlled by this company was given as 33 tons per day, and that of viscose as 150 tons. The company has developed three wear testers for testing single fibres; these are described in this report and diagrams illustrating their operation are given. There was also an apparatus which was new to the investigators, for testing the folding endurance of fibers. The method of bending was the same as in the standard Schopper tester for cloth, where the sample is held in a clamp rocking through an angle of 180°, but the specimen was held under tension by a weighted hook passing through the eye of a lightmetal spring holding a pen indicator over a rotating drum. A sketch of this apparatus is also given. An apparatus for testing the thermal insulation of fabrics consisted of a metal cylinder, tear drop shape in cross-section, and about 16 inches high, with major and minor axes of 8 and 4 inches approximately. The operation of this apparatus is described in detail. Experiments had been made at various velocities but the method was standardized at one velocity for the comparison of fabrics.

PB 18434. LAUER, KARL and WILDE, O. Messungen von verdünnungswärmen und benetzungswärmen mit dem unterwasser-metallblockkalorimeter (Measurement of the heat of dilution and the heat of wetting with an under water metal block calorimeter). (ALSOS Mission, REM 302) Sep 1944. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This calorimeter was considered most suitable for the purpose. The heat liberated by the action of toluene on cotton and cellulose wool and of acetic acid on cotton and cellulose wool was measured. The preparation of the sample and the instrument used is described.

PB 18432. LAUER, KARL, and others. Quellfestmachung fasern (parts 2, 3, 4). (Swell-resistant fibers). (ALSOS Mission, REM 303) Jul 1944. 14 p. Price: Microfilm-50¢ - Photostat-$1.00
Several catalysts and their action on the physical properties of synthetic fibers were compared. The swelling of fibers, their elasticity; effects of temperature, drying for varying periods, PH of buffer solutions were all noted. Graphs, tables.

PB 22337. RICHARDSON, FRANCIS S. German technical developments in textile finishing processes. (QM Textile Series Rept 3) Mar 1946. 222 p. Price: Microfilm - $2.50 - Photostat - $15.00
This report is divided into the following sections: I. German textile processing and equipment; II. mandatory Order No. 7 by the Special Commission for the German Textile Industry, and Directions for the bleaching of textile raw materials, yarns and fabrics, effective Dec 15, 1940; III. instructions No. 60/42 by the Manager of the Wirtschaftsgruppe Textilindustrie, and Directions for the bleaching of textile raw materials, yarns and fabrics; IV. Bleaching procedures for cotton, rayon, staple and blends, a series of papers by H. Korte and his associates in the Textile Application Laboratory, I. G. Farben; V. camouflage fabrics both plain and printed for military use by the German S. S. and German Army; VI. the German shelter half; VII. engraving for printing; VIII. softening agents for the finishing of cotton and spun rayon fabrics - "Soromin" brands, research report of Textile Application Laboratory, I. G. Farben, Hoechst; IX. chemistry and techniques of swelling-proof finishes, lecture of Dr. Gutman before Chemists of Dyestuff Manufacturers, March 1945; X. preserving agents for technical purposes, especially for the glue, paper and textile industry, research report of Textile Application Laboratory, I. G. Farben, Hoechst; XI. textile auxiliaries in aqueous dispersions, also an I. G. Farben research report. A drawing is included for Reichspatent No. 728729, Class 8a, Group 9 70, H 164050 VII/8a, issued December 2, 1942 to Heinrich Habig A. G. at Herdecke, Ruhr. It is apparent that the machine covered by this patent was particularly effective in developing "Indigosol" dyed fabrics by the nitrite process. Digests of the following patents are also included: Reichspatent No. 993 345, Class 8c Group 11 e1, H 152743 VII/8c issued to Gustav Mark in Herdecke, Ruhr, concerning a type of mandrel bearing for

textile print machine rollers, and accompanied by 3 drawings; and German Patent No. 7774 issued to Franz Hesletberger, concerning heat treatment of textile material. Texts of the following articles (in the original German) are given: 1. "Bemerkungen zu den neuerungen in der baumwollbleiche", by H. Korte, reprint from Monatschrift für textilindustrie, 1931 numbers 10 and 11. This is a discussion of four different bleaching methods - boiling chlorine, Oriesheimer intermediate hot-water treatment, oxygen, and combination bleaching (hypochlorite-oxygen) - on the warp beam. 2. "Das bleichen und veredeln von mischgespinsten und - geweben", by H. Korte and others, reprint from Melliand Textilberichte 1936, numbers 10 and 11. This is a discussion of whether the usual bleaching methods mentioned above can be applied to textiles of low blend ratios, i.e., 84% cotton and 16% staple rayon. Text in German is also given of the following: Reichspatent No. 615 680, Class 51 Group 2, I 41822 IVc/51 issued July 9, 1935 to I. G. Farbenindustrie A. G., Frankfort-on-the-Main, concerning combination bleaching method, alkaline hypochlorite pre-bleaching and subsequent treatment with peroxide; "Abkochen, Beuchen und Bleichen", an I. G. Farben illustrated publication proclaiming the merits of their new bleaching agents - Buva B, Igepal F, etc. Tables, graphs and drawings are included.

PB 17554. ROBINSON, B.B. Preparation of flax and hemp fibers in Germany. (FIAT Final Rept 548) Dec 1945. 19 p. Price: Microfilm-50¢ - Photostat-$2.00
The methods and machines used in the German raw flax, and hemp fiber industries are in general similar to those used in other countries where the preparation and cleansing of these fibers have been industrialized and are no longer peasant industries. The reduction by mechanical means of the water content of wet flax straw after removal from a retting tank has received the attention of inventors and processors for many years. The use of pressure rollers is not new but their employment on a large scale as practiced in Germany is none too common. The proper understanding of their effect on the quality of this fiber is so conflicting that their use is worthy of note for American processors where the employment of some similar method might be of value for winter retting. Differences between flax and hemp, and flockenbast and cotton are discussed. Machines for the preparation of flax and hemp fibers, as well as chemical processes used in the preparation of flockenbast, are described. The method of determining the class and price of straw based on a point system is shown in tabular form. A list of factories and research organizations used as sources of information are included. Photographs of raw materials, photograph of Lindner flax harvester and diagram indicating machines and steps used in the preliminary cleaning, chemical cooking, mechanical after-opening and spinning of mixed flockenbast and staple rayon are shown.

PB 18393. ZELLSTOFFABRIK WALDHOF, JOHANNESMUHLE. Forschungsarbeiten für die dringlichkeitsnummern verlangt werden (Research for which preference is requested). Jul 1944. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
This appears to be a memorandum of the research laboratory. The proposed research is to treat wood of deciduous or coniferous origin in such a way that most of the impurities are removed leaving the pure or almost pure cellulose suitable for synthetic cellulose fiber. Research was to be directed toward a qualitative determination of the impurities and methods devised for their removal.

Italian

PB 17565. ROBINSON, BRITTAIN B., and SCHOFFSTALL, CHARLES W. The Italian hemp industry. (FIAT Final Rept 547) 1945. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
The hemp industry of Italy is largely under the control of a national organization, Consorzio Nazionale Canapa, the main office of which is in Milan, with branch offices in Bologna, Rome, Naples, etc. This organization appears to be closely associated with the Linificio e Canapificio Associazione, the head office of which is also in Milan. The organizations fix the prices for the various grades of fiber and appear to control through purchases and manufacturing operations about 85% of the raw fiber hemp industry of Italy. The fiber of the raw fiber hemp grown in Italy is principally prepared on small farms as a peasant industry. The production in Italy has not become industrialized to any great extent as it has in many countries where the retting and cleaning of the fiber is carried on as a factory process. As a result the methods followed and the machinery used are very primitive and require a great amount of hand labor. There are no steps in the production that can be considered worthy of recommendation for adoption in the United States. Tables present raw hemp prices for the northern areas and for the Naples area of Italy. Principal persons interviewed are listed.

Japanese

PB 22342. U. S. NATIONAL BUREAU OF STANDARDS. TEXTILE SECTION. Ropes obtained from captured Japanese equipment. (QM Textile Series Rept 10) Mar 1946. 58 p.
Price: Microfilm-$1.00 - Photostat-$4.00
The composition of the fiber, construction, weight per foot, breaking strength and color of a representative range of Japanese ropes, twines and cords are reported in this compilation. The 26 samples analyzed included samples, of various strands and diameters, made from the following materials: palm fiber, ramie (Boehmeria Nivea), paper twine, bast fiber, sisal, Roselle, (Hibiscus sabdariffa), Oriental rush fiber, cotton, coir (fiber from the husk of the coconut), and jute. Photographs of the samples are included.

United States

PB 17026. BROWN, GLEN F. Quartermaster purchases of wool cloths and blankets for World War II. 1946. 20 p. Price: Microfilm-50¢ - Photostat-$2.00
The procurement of wool cloth by the Quartermaster Corps has been occasioned largely by its policy of furnishing component materials to contractors for the manufacture of coats, jackets, trousers, shirts and other garments which it procures. Substantial quantities of cloth have also been delivered as war aid, principally to Russia, and lesser quantities for the production of uniforms for the Army Exchange Service, and for fabrication programs of the Army abroad. Blankets were procured for general issue to all Army personnel, war aid, and the Medical Corps.

PB 16567. ERICKSON, C. L. and MENIKHEIM, V. C. Increased rigidity and tautness of control surface fabric covering. (Army Air Forces. Eng. Div. TSEAM-M4855, Add. 1). Nov 1945. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
Investigation of the effect of temperature extremes, -67°F. to 150°F., and of fabric reinforcement on the rigidity and elasticity of cellulose nitrate doped fabric finishes. Test panels were prepared with variations in the weight of applied dope; with warp threads running parallel and also one at right angles to the long dimension of the panel. On one panel the fabric was re-inforced by a one-inch strip of fine copper wire cloth before applying dope. Others used a second layer of cloth, and also variations in doping procedure. It was concluded that rigidity varies inversely with the temperature. Weight has a negligible effect on elasticity of cellulose nitrate films. Elasticity and rigidity do not seem to be appreciably affected by the various methods of reinforcement tested. Tables and graphs of the various tests made are appended.

PB 16641. ERICKSON, C. L. and MENIKHEIM, VIRGINIA C. Increased rigidity and tautness of control surface fabric covering. (AAF ATSC Eng Div Memo Rept TSEAM-M4855, Add II) Dec 1945. 41 p. Price: Microfilm-50¢ - Photostat-$3.00

Data on the rigidity and elasticity of airplane fabric panels finished with ethyl cellulose and cellulose acetate-butyrate dopes are presented herein. Comparison is made with similar data previously obtained for cellulose nitrate dope. Studies were made on panels coated with clear dope, clear dope plus top coats of aluminined dope, clear dope plus top coats of pigmented dope, and at high and low temperatures. For a given temperature the rigidity of the two films appears to be independent of dry film weight. Rigidity of ethyl cellulose film was found to increase with decreasing temperature over the range 150° to -67°. Comparative rigidity and elasticity of the three types of dope studied is given. Appendices have tables, graphs, and a photograph.

PB 18466. GIVAUDAN-DELAWANNA, INC., NEW YORK, N. Y. Report on mildewproofing and rot-proofing cotton fabrics with a combination of copper naphthenate and compound G-4T. (NDRC Misc Rept 13.Tropical Deterioration Administrative Committee Rept TDIC-33) Feb 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This report contains the formulas used for treating OD webbing with copper naphthenate and a non-durable type of water repellent. All samples were tested by the soil-burial test. Test data are recorded in tabular form.

PB 18462. GODDIN, A. H. Resistance of cellulose acetate, nylon and other fabrics to attack by insects, Jan 27 - Mar 6, 1943. (NDRC Rept Misc 1 Tropical Deterioration Administrative Committee Rept TDIC-6) Jul 1944. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes the various tests which were conducted to discover: (1) If insects would attack fabrics based on cellulose; (2) if nylon film will protect certain food from attack by insects. Tests included subsistence tests conducted with four species of fabric tests, barrier tests and defiling tests. Results proved that in general the various species of insect attacked and considerably damaged almost all of the fabrics but that none of them were able to damage nylon other than by "toothmarks". Carpet beetles and clothes moths caused moderate damage to nylon but in general the damage to nylon fabrics was less than that to cellulose fabrics.

PB 16536. GUERNSEY, EDWIN O. Effect of corroded chromate treated zinc and cadmium plate on nylon and cotton. (Army Air Forces. Air Tech. Service Command. Eng. Div. ENG-M-56-4533, Add. 1). 1944. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This report is composed of a series of tests to determine the effectiveness of chromate treatments on zinc in preventing the deterioration of cloth in contact with zinc under corrosive exposure. Appendices are composed of tables.

PB 16290. GUERNSEY, EDWIN O. Effect of corroded zinc and cadmium plate on nylon and cotton. (AAF Eng Div Memo Rept ENG-56-M4533) Jul 1943. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
Nylon or cotton airplane cloth in contact with corroded cadmium plate is not materially weakened and shows little evidence of deterioration. Nylon cloth in contact with corroded zinc plate is materially reduced in strength (16% in three weeks) while cotton cloth is rapidly and destructively deteriorated (as much as 90% in two weeks). Cotton cloth accelerates the corrosion of zinc plate exposed to salt spray. Zinc plate should not be used in airplanes where contact with cotton or nylon textiles is required. Tables of data areincluded and procedure in tests is described.

PB 16523. HOLGATE, B. A. Fire and gasoline proof flying clothing. (Army Air Forces. Eng. Div. Memo Rept. ENG-56-M3830). Dec 1943. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
A finish which would partially meet the proposed requirements was developed. An appendix contains a brief discussion of flame-proofing and liquid repellants. The finish was a combination of antimony, vinylite and the medium of application. Details of application are not given.

PB 18465. HOOPER, WM.E. & SONS COMPANY. Summary report of natural weather exposure tests on fire chief treated fabric compared with the corresponding untreated cotton duck. (NDRC Rept Misc 11.Tropical Deterioration Administrative Committee Rept TDIC-71) Mar 1945. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
This report summarizes results obtained from tests made on cotton duck which had been treated for Army, Navy and Marine Corps. This material, produced by the Wm. E. Hooper and Sons laboratory, was exposed to natural weather conditions existing in Baltimore and Miami. Data are given for untreated, treated OD, and treated blue duck for unexposed material and for material exposed for 3 months, 6 months, 9 months, and 12 months.

PB 16777. JUKKOLA, E. E. Formulation of dopes for improved durability. (AAF Eng Div ENG-M-56-4352) Jan 1943. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
Preparation and exposure of test panels to study the effect of changes in plasticizer content and pigmentation of dopes to improve the durability of doped fabric finishes of airplanes used for training. All held their tautness, and sufficient color, and passed the folding test,but the most satisfactory results were obtained with dopes in which 100% tricrestyl phosphate was the plasticizer. Raw castor oil was least successful. Tables of the composition of the formulas used and the results of the durability tests are included.

PB 17300. LOTT, H. E. Tests of nylon parachutes in FS spray. (CWS Tech Div Memo Rept 943) Dec 1944. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
A paratrooper jumping with a nylon parachute will not be injured by the failure of the fabric due to corrosion by FS spray or smoke of any concentration to which he could be exposed. A parachute once exposed to an FS smoke screen should not be re-used by personnel but may be suitable for re-use for dropping supplies; however, it should be examined to determine the amount of deterioration of the fabric. FS consists of sulfur trioxide in chlorosulfonic acid. The photograph attached shows a nylon parachute that has been exposed to FS spray.

PB 16576. MENIKHEIM, VIRGINIA C. Increased rigidity and tautness of control surface fabric covering. (AAF ATSC. Eng Div Memo Rept TSEAL-4M4855.) Jan 1945. 35 p. Price: Microfilm-50¢ - Photostat-$3.00
It has been reported that the contours of doped fabric control surfaces of aircraft are excessively affected at high speeds, and it was desired to determine if improvements in performance could be obtained by modifying the present doping procedure. Tests indicate that: (a) The deflection of the doped fabric under pressure is relatively independent of the dry film weight and type of dope used; (b) the elastic limit of the fabric was increased with an increased dry film weight of clear dope; (c) the elastic limit of the fabric was increased more by the unplasticized dope than by equivalent amounts of plasticized dope; and (d) doped panels with the fabric laced to metal reinforcements show under pressure less amplitude of expansion since the expansion is redistributed; however, the elastic limit is not appreciably increased. Appendices contain tabulated results of tests, graphs and photographs. For later report see PB 16641.

PB 16040. ROSS, JOSEPH E. Tetrachlorethane concentrations and stack losses with a modified final dryer at Columbus Z.of I. impregnating plant. (CWS T.D.M.R. 967) Feb 1945. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
A description of analyses made to determine tetrachlorethane vapor concentrations due to losses from dryers and also of study to determine air flow and tetrachlorethane concentration in the exhaust stack. The zone of interior impregnating plant was situated at Columbus, Ohio.

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PB 18390. TILLER, F.M. Buoyancy studies of fiber substitutes for kapok. (OPRD contract WPB-133)
Sep 1944. 73 p. Limited free distribution; thereafter, microfilm-$1.00 - photostat-$5.00
Part I gives information on the evaluation of optimum densities for kapok, cotton, Typha and fiberglas, correlation of buoyancy vs. time data including the effect of cage depth, and multicompartment pads. Part II covers original objectives of the studies, recommendations, rewriting of specifications, and testing procedure for new materials. Tables and 36 graphs are given. The laboratory work was conducted by Vanderbilt University.

PB 18403. U. S. WAR DEPARTMENT. QUARTERMASTER BOARD. Final report of test of towels, turkish. (Project T-142)
Mar 1943. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
The test revealed that two small turkish towels are a more satisfactory combination than the issue of one large turkish and two huck towels. Procedure in test is outlined, and findings are presented in detail.

PB 18772. U. S. WAR DEPARTMENT. QUARTERMASTER CORPS. Quartermaster laundry (semimobile). Laundering process. (Tech Bul 10-352-2) Feb 1946. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This bulletin presents formulas for mobile laundries for the washing of cotton, woolen and hospital articles. A formula is given for laundering permeable protective clothing.

PB 18406. U. S. WAR DEPARTMENT. QUARTERMASTER BOARD. Report of observational test of tape of rayon, and cloths of rayon and cotton. (Project M-12) Dec 1942. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
Rayon and cotton twill and rayon acetate tape were tested to determine their possible usefulness in items of clothing and equipment. Types "A" and "B" rayon and cotton twills were satisfactory for water repellancy, wind resistance, sewing qualities, snag resistance, and surface smoothness, but unsatisfactory for resistance to tear. Type "A" was satisfactory and type "B" unsatisfactory for color fastness. The rayon tape was considered unsatisfactory due to its poor resistance to tear.

PB 18401. U. S. WAR DEPARTMENT. QUARTERMASTER BOARD. Report of test of trousers, cotton, knee length, "British Model" - QMB T-1304. (Project T-253) Oct 1943.
5 p. Price: Microfilm-50¢ - Photostat-$1.00
The conclusion reached was that the trousers, cotton khaki, knee length, "British Model", are less satisfactory for men engaged in administration and routine field work in warm climates than the trousers, cotton, khaki, knee length, standard model. With regard to function and comfort, the reactionsof men performing administrative duties are favorable to wearing knee-length trousers in climatic conditions similar to those encountered at Camp Lee, Virginia. Conduct of test and findings are outlined.

PB 18404. U. S. WAR DEPARTMENT. QUARTERMASTER BOARD. Report of test of trousers, leg closures of - QMB-T-1438. (Project T-382) Oct 1944. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
The drawstring closures (types 2 and 9) are satisfactory with respect to fit, comfort, appearance, function and durability, and are superior to all the other types tested with respect to the ease of manipulation when wet or when adjusted with the gloved hand. Test procedure and findings are presented.

PB 18402. U. S. WAR DEPARTMENT. QUARTERMASTER BOARD. Report of test of trousers and jacket, H.B.T., modified weave - QMB T-1402. (Project T-329) Sep 1944.
6 p. Price: Microfilm-50¢ - Photostat-$1.00
There are no material differences in the comparative wearing qualities or no appreciable differences with regard to color fastness among the standard herringbone twill and types "B", "C" and "D" modified weave herringbone twill. Trousers and jackets of types "B" and "C" herringbone twill (modified) are slightly superior to trousers and jackets of type "A" standard, and type "D" modified herringbone twill with respect to shrinkage. Scope of test and findings are outlined.

TRANSPORTATION EQUIPMENT

AERONAUTICS

U.S. AERONAUTICAL BOARD. Army-Navy aeronautical specifications. Each specification is priced at 50¢ for a microfilm copy and $1.00 for a photostat copy unless otherwise noted. Revisions of these specifications are received by the Publication Board as issued, and the latest revision will be included in the price quoted.
Accelerometers; Aircraft (AN-A-29) PB 21178. Acid; Chromic (AN-A-21) PB 21179. Alcohol; Butyl, Normal (AN-O-A-391) PB 21180. Alcohol; Diacetone (AN-A-7) PB 21181. Alcohol; Specially Denatured Ethyl (AN-A-18-1) PB 21182. Alcohol Mixture (50% Ethyl-50% Methyl) (AN-A-24) PB 21183. Altimeters; Barometric Index, Pressure (AN-A-2) PB 21184, 19 p., Photostat $2.00. Altimeters; Pressure (AN-A-30-2) PB 21185, 17 p., Photostat $2.00. Aluminum Alloy (Al-14); Extruded Shapes (AN-A-8) PB 21186. Aluminum Alloy 6.5Zn-2.5Mg-1.5 Cu (303); Extruded Shapes (AN-A-37) PB 21187. Aluminum Alloy (Al-XB75); Extruded Shapes (AN-A-11a) PB 21188. Aluminum Alloy (Al-24); Plate, Sheet, and Strip (AN-A-12-1) PB 21189. Aluminum Alloy, Clad; (Al-24S2) Plate, Sheet and Strip (AN-A-13-2) PB 21190. Aluminum Alloy (4.5 Copper, 1.0 Silicon, Manganese, Magnesium); Clad Plate and Sheet (AN-A-22) PB 21191. Aluminum Alloy; General Specification for Castings (AN-A-23-1) PB 21192. Aluminum-Alloy; Die-Castings (Al-13; Al-13X; Al-85; Al-85X; Al-218) (AN-A-38) PB 21193. Aluminum-Alloy (Al-355); Permanent-Mold-and-Sand-Castings (AN-QQ-A-376-2) PB 21194. Aluminum Alloy 4.0 Cu-2.0 Ni-1.5 Mg (142) Permanent Mold Castings (AN-A-32) PB 21195. Aluminum Alloy 4.0 Cu-2.0 Ni-1.5 Mg (142) Sand Castings (AN-A-31-1) PB 21196. Aluminum-Alloy 4.5 Cu-1.0 Si (195) Sand Castings (AN-A-35) PB 21197. Aluminum Alloy 4.5 Cu-2.5 Si (B195) Permanent Mold Castings (AN-A-36) PB 21198. Aluminum Alloy 7.0 Cu-2.0 Si (212) Sand Castings (AN-A-28) PB 21199. Aluminum Alloy 10.0 Mg (220) Sand Castings (AN-A-33) PB 21200. Aluminum Alloy 5.0 Si (43) Sand Castings (AN-A-27) PB 21201. Aluminum Alloy 7.0 Si (356) Permanent Mold Castings (AN-A-34-1) PB 21202. Aluminum Alloy 12.0 Si-2.5 Ni-1.0 Cu-1.0Mg(A132); Permanent Mold Castings (AN-A-25) PB 21203. Aluminum Alloy 5.5 Zn-2.5 Mg-1.5 Cu (75) Clad Plate and Sheet (AN-A-10b) PB 21204. Aluminum Alloy 5.5 Zn-2.5 Mg-1.5 Cu (75) Plate and Sheet (AN-A-9a-1) PB 21205. Aluminum Alloy 7.0 Si (356); Sand Castings (AN-A-39) PB 21206. Aluminum; Foil (AN-A-20-1) PB 21207. Aluminum-Pigment-Paste; Aircraft (AN-TT-A-461a-1) PB 21208. Ammeters and Voltmeters; Direct Current (AN-A-19a-1) PB 21209, 17 p., Photostat $2.00. Amplifiers; Air Position Indicator (AN-A-15a-1) PB 21210. Amplifiers; Gyro Flux Gate Compass (AN-A-6a-1) PB 21211. Amyl-Acetate (AN-TT-A-511) PB 21212. Anodes; Cadmium (AN-QQ-A-671a) PB 21213 Anodes; Zinc (AN-QQ-A-686a) PB 21214. Anodic-Films; Corrosion-Protective (for) Aluminum Alloys (AN-QQ-A-696a) PB 21215. Antimony Oxide; Dry (Pigment) (AN-TT-A-566) PB 21216. Astrographs (AN-A-14) PB 21217. Barrier; Flexible Sheet Moisture Vapor (AN-B-20-1) PB 21218. Batteries; 12-Volt, 17-Ampere-Hour Shielded Storage (AN-B-13a) PB 21219. Battery; 24-Volt, 17-Ampere Hour Shielded Storage (AN-B-24) PB 21220. Battery; 24-Volt, 34-Ampere Hour Shielded Storage (AN-B-25) PB 21221. Bearings; Copper-Tin Sintered (Oil Impregnated) (AN-B-7) PB 21222. Belts; Gunners' Safety (AN-B-15-2) PB 21223. Bonding; Electrical (For Aircraft) (AN-B-10a-1) PB 21224. Boots; Toggle Switch (AN-B-21) PB 21225. Brackets, High Pressure Oxygen Cylinder (AN-B-6-2) PB 21226. Brass, Rolled; Bar-and-Rod (for Turnbuckle Barrels) AN-QQ-B-646-1) PB 21227. Bridge Assembly; Floodlight (AN-B-1a) PB 21228. Bronze, Aluminum; Bar and Rod (AN-B-16-1) PB 21229. Bronze, Aluminum; Castings, Aircraft

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Tubing; Magnesium Alloy (3.0 Aluminum, 1.0 Zinc), Round Extruded. (AN-T-72) PB 21760. Tubing; Magnesium Alloy (1.5 Manganese), Round Extruded (AN-T-73) PB 21761. Tubing; Nickel-Chromium-Iron-Alloy, Seamless, Round (AN-WW-T-831-1) PB 21762. Tubing; Nickel-Chromium-Iron-Alloy, Welded, Round (AN-WW-T-833-1) PB 21763. Tubing; Steel, Carbon (1025), Seamless (AN-WW-T-846-2) PB 21764. Tubing; Steel, Chrome-Molybdenum (X4130), Seamless (AN-WW-T-850a-2) PB 21765. Tubing; Steel, Chrome-Molybdenum (X4135) Seamless (AN-WW-T-852a-1) PB 21766. Tubing; Steel, Corrosion-Resisting (18Cr-8Ni), Round, Seamless (AN-WW-T-855-2) PB 21767. Tubing; Steel, Corrosion-and-Heat-Resisting (18Cr-8Ni), Round, Seamless. (AN-WW-T-858-2) PB 21768. Tubing; Steel, Carbon (1025), Welded (AN-T-4-1) PB 21769. Tubing; Steel, Chrome-Molybdenum (X4130), Welded (AN-T-3) PB 21770. Tubing; Welded Corrosion Resisting (18 Cr-8Ni) Steel Round (for Hydraulic Systems) (AN-T-43-2) PB 21771. Turnbuckles; Aircraft (AN-T-19b) PB 21772. Valves; Air Pump Safety (AN-V-20) PB 21773. Valves; Air Pump Suction Relief (AN-V-21-1) PB 21774.17 p., Photostat $2.00. Valves; Air Vacuum Regulating (Throttling) (AN-V-22-1) PB 21775. Valves; High Pressure Oxygen Check (AN-V-13a) PB 21776. Valves; High Pressure Oxygen Filler (AN-V-11) PB 21777. Valves; High Pressure Oxygen Line (AN-V-12) PB 21778. Valves; Hydraulic Check (AN-V-5c) PB 21779. Valves; Hydraulic Controllable Check (AN-V-9a) PB 21780. Valves; Hydraulic Directional Control (AN-V-4a) PB 21781. Valves; Hydraulic Pressure Relief (AN-V-1a) PB 21782. Valves; Hydraulic Restrictor (AN-V-23) PB 21783. Valves; Hydraulic, Shuttle (AN-V-3-1) PB 21784. Valves; Hydraulic Thermal Expansion Relief (AN-V-28-1) PB 21785. Valves; Low-Pressure Oxygen Check (AN-V-15-2) PB 21786. Valves; Low Pressure Oxygen Filler (AN-V-14a) PB 21787. Valves; Oxygen Cylinder (AN-V-17-1) PB 21788. Valves; Power Brake (AN-V-6) PB 21789, 18 p., Photostat $2.00. Valves; Static Pressure Selector (AN-V-10a-1 PB 21790. Valves; Oil Dilution and Separately Mounted Priming Solenoid (AN-V-16a) PB 21791. Valves; Vacuum and Pressure System Check (AN-V-8-1) PB 21792. Valves; Vacuum Restrictor (AN-V-24-1) PB 21793. Varnish; Decalcomania Adhesive (AN-V-29) PB 21794. Varnish; Phenol-Formaldehyde Spar (AN-V-26) PB 21795. Varnish; Wood Propeller (AN-V-27) PB 21796. Vests; Pneumatic Life (AN-V-18-1) PB 21797. Vibration Tests of Fuel, Oil and Miscellaneous Tanks; Process for (AN-V-7-2) PB 21798. Vibrators; Aircraft Engine Starting (AN-V-25) PB 21799. Voltmeters; 0-150 Volt 400 Cycle Alternating Current (AN-V-19a-1) PB 21800. Wadding; Creped Cellulose (AN-W-18a) PB 21801. Washers; Spring Lock (AN-W-7a-1) PB 21802. Watches; Navigation, Master (AN-GG-W-108-1) PB 21803. Watches; Navigational Stop (AN-W-9) PB 21804. Water; Emergency Drinking (In Sealed Cans) (AN-W-5b-1) PB 21805. Webbing; Cotton (AN-W-21-1) PB 21806. Webbing; Elastic Cotton (AN-W-15-3) PB 21807. Webbing; Linen, Linen-Hemp, or Linen-Ramie (AN-W-16) PB 21808. Webbing; Tubular Nylon (AN-W-10a) PB 21809. Weight and Balance Control Data (for Airplanes) (AN-W-11a-2) PB 21810. 24p., Photostat $2.00 Wheel and Brake Assemblies; Aircraft (AN-W-6-2) PB 21811. Wire; Aircraft Stitching (AN-W-13-3) PB 21812. Wire; Aluminum and Aluminum Alloy (for Rivets) (AN-QQ-W-298-3) PB 21813. Wire; Corrosion-Resisting (Grade 0) Steel (AN-W-24) PB 21814. Wire; Iron and Constantan Thermocouple (AN-W-

Sb) PB 21815. Wire; Metal Spraying (AN-W-20-1) PB 21816. Wire; Spring Steel (Music Wire) (AN-W-17) PB 21817. Wire; Corrosion-Resisting (Grade MCR)Steel (AN-W-23) PB 21818. Wire; Zinc Coated, High Strength, Steel (AN-W-25) PB 21819. Wire; Zinc Coated, Soft, Steel (AN-W-22) PB 21820. Wiring; Installation of Aircraft (AN-W-14a-1) PB 21821, 22 p., Photostat $2.00. Wood; Determination of Specific Gravity of (AN-W-4a) PB 21822. Wood; Method for Kiln Drying (AN-W-2a-3) PB 21823. Wrenches; Spark Plug Elbow Square Drive (AN-W-19) PB 21824. X-Ray Laboratories; Procedure for the Certification of (AN-X-2-1) PB 21825. Zinc-Cyanide (AN-O-Z-361) PB 21826. Zinc-Yellow (Zinc-Chromate); Dry (Pigment (AN-TT-Z-416-2) PB 21827.

Instruments

PB 14967. DRODOFSKY, M. Astronomische beobachtungsinstrumente (Astronomical observation instruments). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik V B 2). (ALSOS Mission, Klotter File 11 E) Sep 30, 1937. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
The various types of navigation instruments are described and their uses discussed. Several types of sextants and chronometers are given. The natural and the artificial horizons are also explained as they pertain to sextants. Tables, graphs, formulas and bibliography are included. In German.

PB 14986. FISCHEL, E. Die vollautomatische flugzeugsteuerung (The aircraft robot). (Reichsluftfahrtministerium, ringbuch der luftfahrttechnik V E 4) (ALSOS Mission, Klotter File 11E) Oct 1940. 47 p. Price: Microfilm-50¢ - Photostat-$4.00
The report covers one system which regulates the three rudders only and another one which also governs the engines. The principles are explained by numerous drawings in the text. In German.

PB 18120. FLATT, JOSEPH. Initial flight tests of type A-1 optimum cruising indicator. (AAF Eng Div ENG-51-655-16). Jul 1944. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
Flight testing of indicator which consists of a fuel flow meter and an airspeed indicator, and is constructed to read in indicated air miles per pound of fuel. Preliminary tests indicate that the average miles per gallon could be increased approximately 14% with this instrument when used on a B-17F airplane loaded to 53.190 pounds gross weight.

PB 14976. HENKE, A. Langstreckennavigation (Long-distance navigation). (Reichsluftfahrtministerium, ringbuch der luftfahrttechnik V B 8) (ALSOS Mission, Klotter File 11E) Jul 1940. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
The study refers to the different navigational aids the navigator has at his disposal on a long-distance flight. It describes the merits of the available instruments and types of navigation. The author died before he completed the chapter on radio-direction-finding. A sample log-book and some graphs are included in the text. In German.

PB 14987. KOPPE, H. Fahrtmessungen (Speed-measurements). (Reichsluftfahrtministerium, ringbuch der luftfahrttechnik V E 5) (ALSOS Mission, Klotter File 11 E) Oct 1940. 14 p. Price: Microfilm-50¢ - Photostat-$1.00
The report explains the mathematical relation between speed and dynamic pressure and describes the different systems and their functioning, especially as applied to aeronautical instruments. Diagrams and drawings are included in the text. In German.

PB 14988. KOPPE, H. Triebwerks-überwachung (Motor supervision). (Reichsluftfahrtministerium, ringbuch der luftfahrttechnik V E 6) (ALSOS Mission, Klotter File 11E) Oct 1940. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
The report covers the standard instruments used to efficiently operate an aircraft engine. Drawings illustrate the way these instruments function. Instruments for the cooling, lubrication and fuel systems are treated separately. In German.

PB 14983. OPPELT, W. Das verhalten des flugzeuges mit kurssteuerung (The behavior of an aircraft with automatic pilot control). (Reichsluftfahrtministerium, ringbuch der luftfahrttechnik V E 1) (ALSOS Mission, Klotter File 11E) Sep 1937. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
The behavior of an automatic pilot is reported on, using different steering control systems. The results are explained first for errorless control and then the errors of actual control and their resulting effects are reported. Graphs are included with the text. In German.

PB 14968. SCHMIDT, OSWALD. Der flugzeugkompass (The aircraft compass). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik V B 3). (ALSOS Mission, Klotter File 11 E). Jun 13, 1938. 12 p. Price: Microfilm-50¢-Photostat-$1.00
There is a discussion of the various methods of determining a course and the physical basis for the determinations. The different types of compasses, the disturbances encountered and the correction of those disturbances are described. Formulas, graphs, bibliography. In German.

Engines and Propellers

German

PB 14601. BEHRMANN, W. Messung der schwingungsbeanspruchungen von flugmotoren-kurbelwellen und fernleitungswellen (Measurement of strain in crankshafts and driving shafts of aircraft motors). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik III B 14). (ALSOS Mission, Klotter File 11 C). Nov 30, 1938. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Processes for the measurement of rotational, bending and longitudinal vibrations of aircraft crankshafts are considered as well as the rotationaal and bending vibrations of the driving (long) shaft. A formula for the measurement of the strain is discussed.

PB 14600. BEHRMANN, W. and ULRICH, W. Schwingungs-und beanspruchungs-messgeräte für luftfahrzeug-triebwerke (Devices for measuring vibration and stress in aircraft motors). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik III B 13). Jun 29, 1938. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
Aircraft motors require special measuring tests for vibration and stress. Various instruments were developed at DVL and other places especially for aircraft or were well suited for that purpose. The report discusses the measurement of slight motions using mechanical, optical, and electrical devices. Also considered are the application and efficiency of the instruments, such as displacement meter, extensometer, torsionmeter and vibrationmeter. Diagrams and photographs of the various instruments are shown. In German.

PB 14666. CORIES, G. Die luftschraube bei gestörtem zustrom (The propeller in a turbulent currents). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik I C 5). (ALSOS Mission, Klotter File 11 A). Jan 10, 1938. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
The flow of tubulent air currents and its effects upon propellers are discussed. The various sources of the turbulence are given. The effect of the propeller currents on parts of the plane is also explained. Various diagrams depict air currents under different conditions, propeller component moments and other forces acting on airflow. Formulas, drawings, bibliography.

PB 14658. HELMBOLD, H. B. Der entwurf einer luftschraube für gegebene betriebsverhaltnisse (The design of a propeller under given working conditions). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik I C 2). (ALSOS Mission, Klotter File 11 A). Jan 28, 1937. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
Report describes the dimensions and workings of a free propeller and the working of a propeller in aircraft. The relationship between the shape of the propeller and airflow is also discussed. Formulas and tables for calculations are given. Curves and bibliography are included. In German.

PB 14602. HENRICI, J. Die verfahren zur leistungsmessung beim betrieb von motoren im flugzeug (The methods of measuring power of aircraft motors) (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik III B 15). (ALSOS Mission, Klotter File 11 C). Jun 25, 1938. 8 p.
Price: Microfilm-50¢ - Photostat-$1.00
Report discusses the need for a good method of power measurement of aircraft motors. There is a review of the several methods now in use and comments on their value. Specific German aircraft motors are discussed. Diagrams, bibliography, and curves. In German.

PB 14597. HIMMLER, C. R. Ermittlung der höhenleistung von flugmotoren am boden (Determination of the altitude efficiency of aircraft motors thourhg ground tests). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik III B 10). (ALSOS Mission, Klotter File 11 C). Feb 28, 1938. 17 p. Price: Microfilm-50¢ - Photostat-$2.00
It was found possible to determine the altitude efficiency of aircraft engines by approximating those conditions on the ground. Diagrams show the methods by which pressure and temperature changes are effected. Formulas were given by which the efficiency at a given altitude could be used to determine the efficiency at a different altitude. Various German engines were ground and altitude tested. Some had superchargers, others did not. Graphs, computations, bibliography and drawings are included. In German.

PB 14599. KÖRNSCHILD, E. Umrechnungsformeln zur ermittlung der boden-und höhenvolleistung von zünder - und dieselmotoren (Conversion formula for determining the full efficiency of ignition and Diesel motors at high and low altitudes). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik III B 12). (ALSOS Mission, Klotter File 11 C). Jun 10, 1939. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
The influences of manifold pressure, manifold temperature and exhaust pressure upon engine efficiency are discussed. A single formula which considers the influence of the intake and exhaust pressures is presented. The present formula to determine the efficiency at high and low altitudes is given as is the English conversion method, which is also used in Germany. There is a review of the determination of efficiency of the formula for ignition motors now in use. Very little is mentioned of the performance of Diesel motors at high altitudes. Curves of the various influences are discussed. In German.

PB 14659. MESMER, G. Luftschraubenschwingungen. (Vibration in propellers). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik I C 1). (ALSOS Mission, Klotter File 11 A) n.d. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
The report is concerned with the causes of the ordinary vibration of a propeller (resonance vibration) and fluttering. The effect of side winds on propellers is noted. The method of eliminating both types of vibration is discussed. Tables, graphs, bibliography. In German.

PB 18175. REIBER, H. P. Report on the facilities, equipment, manufacture, assembly, new development and testing of aircraft propellers at various German plants located as listed herein. (AAF Tech Intelligence Rept F-33). Jul 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Interrogation of personnel at I.G. Farbenindustrie, Bitterfeld and Leverkusen; Junkers-Flugzeug und Motorenwerke, Dessau and Leipzig; Aerodynamische Versuchtanstalt; University of Göttingen; Vereinigte Leichtmetall Werke; Becker & Van Hullen and Hydraulic-Duisberg. At Bitterafeld and at the Vereinigte Leichtmetall Werke, were found huge stamping presses capable of turning out a propeller blade within 0.004 of finished shape. Other research and assembly procedures were inferior to the U.S. though continued research, especially on corrosion is recommended. Most of the records, drawings and other pertinent data have been destroyed.

PB 14596. SCHEUERMEYER, M. Die messung des verlaufs der gasdrücke im flugmotor (The measurement of the progressive gas pressures in aircraft motors). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik III B 9). (ALSOS Mission, Klotter File 11 C). Apr 30, 1938. 19 p.
Price: Microfilm-50¢ - Photostat-$2.00
The report describes the different methods for determining the various pressures in aircraft engines. Several indicating instruments are now in use. Some of these instruments are optical, others depend on inductance, capacity, piezoelectric or other properties. Drawings and diagrams of some of these instruments are given with explanations for their use. Bibliography. In German.

PB 14656. SCHILHANSL, M. Die prüfung von luftschrauben (The testing of propellers). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik I C 4). (ALSOS Mission, Klotter File 11 A). Feb 10, 1937. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
The report describes the method of testing propellers. Static and dynamic tests are conducted to correct any deviation from true balance. A drawing illustrates the determination of the breaking point of the propeller through excessive R.P.M. Measurement of pitch is described briefly. Photographs and drawings accompany the text. In German.

PB 14604. TELTO, G. Richtlinien für die prüfung von bauteilen und geräten der triebwerksanlagen von flugzeugen. (Procedures for the testing of parts and equipment for aircraft test plants). (Reichsluftfahrtministerium Ringbuch der Luftfahrttechnik III B 17). (ALSOS Mission, Klotter File 11 C). May 15, 1940. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
Report discusses the major types of equipment needed for a test plant. Several illustrations are shown of equipment to test pumps, compressors, lubricating pumps, etc. Motors, valves and tubing are also considered in the report. This report deals only with stationary tests. In German.

PB 14657. WEINIG, F. Die statische festigkeitsberechnung der luftschraubenblätter (The calculation of static strength of propeller blades). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik I C 3). (ALSOS Mission, Klotter File 11 A). Jan 21, 1937. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
The report describes the effect of centrifugal force and other forces acting upon a propeller blade. The size, pitch, thickness, and other characteristics of a propeller are considered. Formulas and tables are given to help calculate stresses on take-off and when flight is straight or curved.

PB 14598. WIEGER, A. Die ermittlung der gestaltfestigkeit von flugmotorenbauteilen durch dynamische dauerversuche (Ascertaining the tensile strength of aircraft motor parts through endurance tests). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik III B 11). (ALSOS Mission, Klotter File 11 C). Jan 15, 1938. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
Ordinary machines can test motor parts that are comparatively simple in design. More complex parts can be tested by setting up several standard machines to test one part. The method of testing more complex parts is described. Some of the testing machines shown include relays, amplitude regulator, pulsator, bending and torsion machines.

United States

PB 18118. BAILEY, B. S. Cooling liquids and cooling liquid test apparatus. (AAF Expt Eng Sect EXP-M-51-523-176). Nov 30, 1942. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
A discussion of problems arising from the use of ethylene glycol and other high temperature coolants for modern liquid aircraft engines. A cooling system, operating under pressure, and employing a combination of ethylene glycol and water is considered. Research is needed on the relationship between the physical and chemical properties of a coolant. Testing of coolants should be correlated and standardized. Such factors as boiling point, specific heat, viscosity, and chemical stability are considered. A drawing and curves bring out the various relationships of these factors.

PB 16242. CALVERT, R. J. Sea level calibration of Lawrance model 20-A, AAF type D-2 accessory power plant. (AAF ATSC Memo Rept ENG-54-656-884 H) Nov 1943. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Sea level calibration of the Lawrance accessory power plant to determine its mechanical condition. No mechanical difficulties occurred so the engine performance is considered to be satisfactory. Tests are shown graphically in the appendix.

PB 16239. CARPENTER, H. L. Starter bearing lubrication test under desert conditions at Blythe Air Base. (AAF ATSC Memo Rept ENG-54-656-889) Oct 1943. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Report on starter operation when lubricated with AN-G-3 grease which was designated for low temperature operation, when used under desert conditions at Blythe, California. Weather conditions were favorable for desert testing as far as temperature and humidity were concerned but there was little dust and sand. No difficulty was encountered with this grease during any starting of engines. Heat testing of starters using AN-G-3 grease was recommended.

PB 18127. DERNBACH, A. F. Test of flow-pattern tufts for use on propellers. (AAF ATSC Tech Rept 5369). Nov 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Test to determine if small tufts of cord could be made to adhere to the blades of a propeller revolving at flight speeds to permit study of airflow over whieling propeller blades, using a rotoscope. Three inch tufts of cord were attached in a rectilinear pattern using DeKhotinsky Hard shellac type cement. Tufts remained on the blade after 30 minutes at 2200 r.p.m. and approval was given to the procedure.

PB 5623. HIERSCH, F. A. Exhaust glow tests. (AAF ATSC Memo Rept EXP-M-57-535-9) Aug 1941. 22 p. Price: Microfilm-50¢ - Photostat-$2.00
The purpose of these tests is the suppression of exhaust glow by any and all available means and to determine thereby the most effective means of exhaust glow suppression that can be made immediately available for airplane installation. Six different tests are described in detail and results are given. There are six diagrams covering the tests, two drawings showing equipment, a table showing products of combustion, and four photographs.

PB 8121. HULMAN, J. Water recovery. (AAF ATSC Memo Rept ENG-57-535-58). Feb 1944. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
Use of water injection has been limited to the amount based on pre-flight filled tankage. If a suitable water recovery system could be developed, it would permit operation at high powers beyond limits of the present fuel. Possibility of increasing range and performance warrants investigation as outlined; by the Aircraft Laboratory on all phases of the flight plan of the B-29; by the Power Plant Laboratory on water injection data with the R-3350 engine; by the Materials Laboratory on analysis of water samples and the effect of harmful ingredients upon engines; by the AiResearch Manufacturing Co. to determine the size and weight of equipment necessary to provide for condensation and storage of water on aircraft and control of a water recovery system.

PB 18123. HUMPHREYS, C. E. Type test of the AAF fixed pitch type hub design No. 843021576 for use on No. 20 splined shaft engines. (AAF ATSC Tech Rept 5336). Nov 1945. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
Test stand and engine tests of hub to determine its suitability for use on the Jacobs R-915-7 direct drive engine having a normal rating of 300 h.p. at 2100 r.p.m. and having a No. 20 shaft. It passed the test in accordance with specification AN-P-24 and was judged suitable for this type engine. Data curves and photograph are included.

PB 18125. HUMPHREYS, C. E. Type test of a two-blade ground adjustable pitch propeller AAF blade design No. X44-K15745; AAF hub design No. 41D5926. (AAF ATSC Tech Rept 5345). Nov 1945. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
Whirl test to determine the suitability of wood blades for use in adjustable pitch hubs normally assembled with solid steel blades. Two laminated maple veneer blades were given a dimensional, magnetic and visual inspection, then assembled balanced, checked for track and installed for testing. Tables photographs and curves are given. Propeller was recommended for flight testing for use on a primatry training type airplane.

PB 5674. MCLANE, R. W. Independent regulator oil pressure systems for P-38 and B-17 airplanes. (AAF ATSC Memo Rept EXP-M-57-522-116) Dec 1941. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
The purpose of this memorandum is to outline a method of supplying a reliable source of hydraulic oil pressure for the supercharger regulator in airplanes equipped with exhaust turbine driven superchargers. Appendix I describes the various systems and four diagrams show their installations in various types of airplanes.

Operations

PB 16249. BAIRD, R. A., III. Accidental release of emergency exit panels - P-43 airplanes. (AAF ATSC Memo Rept U-EXP-M-51-5384) Dec 1941. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Emergency exit panels on P-43 airplanes are being accidentally released, resulting in tail damage, and causing a dangerous condition as some of the panels have been lost during flight. Release of these emergency panels can be effected by sliding forward of the spring loaded locking plungers and pushing outward on the center upright metal of the canopy. Through exercise of proper care to avoid all contact with and inadvertent operation of the emergency release, and by having the dead lock bar in locked position at all times except during flight, such accidents can be avoided.

PB 16557. BLACK, J. B. Memorandum on cruise control data variation between B-29 and B-24. (AAF ATSC Memo Rept TSEAL-6J-185). Aug 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
Performance data for V. L. R. aircraft are more satisfactorily presented by miles per gallon curves derived from the same basic flight data as is used in the conventional cruise control charts and tabular data. The variables involved were studied individually in the estimated order of this importance. External drag did not have an appreciable effect on the method of operation. Present horsepower curves for the 1830 turbo-super charged engine do not adequately protray horsepower variation with altitude. It is recommended that student flight engineers be made familiar with the effects of carburetion on range considerations. All carburetor settings and applicable fuel flow and miles per gallon charts on planes used in teaching cruising control should be surveyed. Two curves are appended.

PB 14969. FÖRSTNER, G. Auswertung astronomischer beobachtungen (Evaluation of astronomical observations). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik V B 4). (ALSOS Mission, Klotter File 11 E). Sep 30, 1937. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
The use of tables to calculate position is considered undesirable. Newer methods which combine observation and calculation permit simple and more accurate results. The different methods involve determinations of altitude, use of a fixed star, planet position and two imaginary stars (points). Tables, graphs, bibliography. In German.

PB 14647. KRÜGER, B. Über das trudeln (Plane spin). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik I B 12). (Alsos Mission, Klotter File 11 A) May 13, 1939. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
The report investigates the nature of plane spins. There is some discussion as to the use of test models and other methods for the correction of spins. In German. Illustrated.

PB 14970. MARON, H. Kurzstreckennavigation (Cross-country navigation). Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik V B 6). (ALSOS Mission, Klotter File 11 E). Feb 28, 1938. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
Ordinary navigational methods are too cumbersome and inaccurate for short (continental) flights. Newer methods have been developed that are more convenient. American methods, ground base methods and the use of the radio beam are discussed. The altimeter, compass, and other navigation aids are discussed. In German.

PB 14648. RAUTENBERG, H. J. Achsenkreuze der flugmechanik und ihre gegenseitige ausrichtung (Coordinate systems in flight mechanics and their mutual orientation). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik I B 13). (Alsos Mission, Klotter File 11 A). May 19, 1940. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
The study explains the conception of each of the three basic systems and introduces an "experimental" system which is a combination of the plane - and wind - related systems. The mutual orientation becomes relatively simple in as much as now only calculations between the experimental and ground-parallel systems are required. In German. Illustrated.

PB 14966. WITTEMANN, A. Die navigation im luftschiff (Aerial navigation). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik V B 1). (ALSOS Mission, Klotter File 11 E) Aug 25, 1937. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
Report describes very briefly the navigation methods in use. The conversion of sea navigation for air is described. Dead reckoning, celestial and radio navigation and meteorology are discussed. Sample problems are illustrated for each type of navigation. In German.

Maintenance and Repair

PB 18111. BISHOP, J. H. Report of observations of B-29 type aircraft maintenance at 20th Air Force Installation. (AAF Eng Div TSEPE-657-86). Jan 1946. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
This is a proposed plan for a model airplane servicing center, which includes analyzing and preparing recommendations for the various units of a service center to provide for all maintenance procedures. This includes a study of aircraft maintenance organization methods, procedures, equipment requirements, facilities, personnel requirements and personnel utilization. Included as a model guide is a report by Capt. C. F. Sopcak on "Aircraft instruments field maintenance" which includes a drawing of a proposed aircraft instrument shop.

PB 16291. WALKER, L. H. Inflation of tires with carbon dioxide. (AAF Eng Div ENG-56-M-4541, Add. I) Jul 1943. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
A study of aircraft tire inflation using compressed carbon dioxide. It is not believed that any harmful effect would result from the use of carbon dioxide as an inflating gas in aircraft tires but its use is recommended for emergency inflation only. It is not believed necessary to develop a cartridge and container as it is possible to use equipment assembled from stock. Discussion of the process and 2 photographs make up the appendix.

LAND TRANSPORTATION

PB 18628. GEORGE, H. P. and others. Investigation of foreign automotive materiel; eight ton half track, German (Project 4/64, Third report) (Frankford Arsenal. Ordnance Lab Rept R-582). Dec 1944. 66 p. Price: Microfilm-$1.00 - Photostat-$5.00
This is one of a series of reports covering the results of investigations to develop metallurgical data for foreign automotive parts. Diagrams and photographs illustrate the textual analysis of the following parts of the German 8 ton half track: crank shaft, oil pump shaft, rocker arm assembly, axle shaft, main shaft (transmission), transmission gear, spline shaft, sliding gear (transmission), and pinion gear (transmission).

PB 14752. HORT, W. and WAAS, H. Untersuchung der laufeigenschaften von drehgestellwagen (Examination of the running properties of railroad cars) (Heinrich-Hertz-Institut für schwingungsforschung, mechanishce abteilung) (Alsos Mission, Klotter File 8 a & 8 b). Apr 1931 and Aug 1933. Volume 1-2. 80 p. Price: Microfilm-$1.00 - Photostat-$6.00
The report was made up from studies on truck-supported cars of the German riechsbahn to determine the causes of vibrations and excessive wear for the purpose of making possible improvements in either respect. The influence of the track and runs at different speeds as well as the construction of the different cars are studied. The instruments used for these tests are described. Each volume has appendix with numerous graphs. In German.

PB 18770. U. S. WAR DEPARTMENT. Second-echelon preventive maintenance services and technical inspections of material handling equipment. (Tech Bul 37-2810-1). Dec 1945. 39 p. Price: Microfilm-50¢ - Photostat-$3.00
This manual establishes unifrom procedures for regularly scheduled monthly and weekly preventive maintenance services and technical inspections of materials handling equipment. A work sheet is provided and an explantion of the sheet appears on a procedure chart. The type of equipment considered includes such vehicles as fork-lift trucks towing tractors and warehouse cargo movers. Specific maintenance procedures for the component parts of such equipment are given.

PB 18591. U. S. WAR DEPARTMENT. QUARTERMASTER CORPS. Tractor, wheeled, gasoline (International Harvester-I-9 Standard and I-9 Special). Operator's and Maintenance manual and parts list. (Tech Manual TM 10-1633). Sep 1, 1945. 421 p. Price: Available from Supt. Documents $1.00
These instructions contain information on the operation, maintenance, and repair of the equipment as well as descriptions of the major units and their functions in relation to the other components of the equipment. The instructions are followed by an appendix containing information on preparation for shipment or storage and an illustrated parts list. Photographs and drawings.

PB 18774. U. S. WAR DEPARTMENT. QUARTERMASTER CORPS. Truck, fork lift, gasoline (Towmotor LT-46, 50, 53, 56, 62 and 72). (Tech Manual 10-1627). Sep 1945. 365 p. Price: Microfilm-$4.00 - Photostat-$25.00
This manual contains information on the operation and maintenance of the subject vehicle and descriptions of the major units and their function in relation to the other components of the vehicle. The pamphlet is arranged in four parts: Part 1, Introduction; Part 2, Operating instructions; Part 3, Maintenance instructions, Part 5, Repair instructions; plus an illustrated parts catalog. Tables, diagrams, photographs.

PB 18773. U. S. WAR DEPARTMENT. TRANSPORTATION CORPS. Car, railway, maintenance, 60-HP, gasoline engine, multigage, 8-man (Willys Engine Model MB) (Tech Manual 55-1255). Feb 1946. 121 p. Price: Microfilm-$1.50 - Photostat-$9.00
This manual contains information on the operation and maintenance of the subject equipment, as well as descriptions of the major units and their functions in relation to the other components of the equipment. Supply catalogs, technical manuals, and other publications applicable to the material covered by this manual are listed in the appendix. Diagrams, photographs.

PB 16106. WELLS, R. J. Cold room test: 3/4 ton ambulance, Dodge; Ord. ser. 81579375. (General Motors Proving Ground Project 52-61; Rept PG-2.938) Nov 1943. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
This report covers results of a cold room test on the crew compartment heating installation in a 3/4 ton Dodge ambulance. It was found that a Motorola GN-6 heater will produce satisfactory temperature but that the temperature at the center of the blood plasma box was much too high. It was therefore recommended that a thermostatic control be devised to keep the temperature of the box at the proper level. The report contains a description of the cold room test, a chart showing cooling curves, and one sketch with two photographs showing installation.

MARINE TRANSPORTATION

PB 15506. ANORDNUNG der Maschinen - und Kessel-anlage. (Machinery arrangements and boiler-room of the "Wilhelm Gustloff"). (Supplement #28 to PB 15477). n.d. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
This is a German blueprint showing the general layout for machinery and boilers in the S. S. Wilhelm Gustloff. It was made March 11, 1938, and is supplement 28 to PB 15477.

PB 5502. BAKELITE CORPORATION. Effects of atmospheric exposure on paints previously submerged in the sea. (OSRD Rept 3904) Jul 1944. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
Observations during several years of many painted test panels and ship bottoms indicate the need for more information regarding the changes that occur when a paint, after being immersed in sea water for several months, is allowed to dry out in the air. It is now believed that this hitherto neglected factor has an important bearing both on laboratory studies of anti-fouling paints and on the practical problems encountered in repainting of Navy vessels in drydock. The reasons for this belief are stated briefly under the following headings: Loss of fouling resistance of paints on drying out after immersion; behavior of metallic copper on drying out after immersion; practical considerations on repainting of Navy ships; and possible reasons for loss of fouling resistance. Experiments now in progress are described in this progress report for the period ending May 31, 1944.

PB 18780. MEYER, C. A. Final summary of the subcommittee for shipbuilding in Germany. (U. S. Off. of Mil. Govt. for Germany. Field Inform. Agency, Tech. Final Report 704). Feb 1946. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
The only German Navy ships of interest to merchant shipping are the high speed, 22,000 h.p. tankers which supplied the fleet and submarines. One outstanding passenger ship was started, the 36,000 ton Vaterland, hull 523. Her power plant was designed to develop 44,000 S.H.P. Speed 24 knots. Eight Benson forced circulation boilers with drum were to operate at 950 I.S.P., 877° superheat. Her twin screw propulsion units were turbo electric. Other developments in the shipping industry are recorded in this report. They deal with turbines, reduction gears, propellers and other ship machinery. Cargo handling equipment and refrigeration are also considered. A list of all C.I.O.S. and F.I.A.T. reports on the German shipbuilding program is included.

PB 16833. RUSSELL, J. S. Japanese aircraft carrier operations, Part I. (AAF Air Tech Intelligence Group Rept 1). Oct 1945. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
Japanese aircraft carrier tactics at the time of the battle of Midway, and details of their aircraft operations were learned in the interrogation of Captains Kawaguchi, Nagaishi and Aoki.

PB 16832. RUSSELL, J. S. Japanese aircraft carrier operations, part II. (AAF Air Tech Intelligence Group Rept 22). Oct 1945. Price: Microfilm-50¢ - Photostat-
Aircraft carrier operations in the attack on Pearl Harbor, carrier fighter direction at the battle of Midway, flight deck arrangements and procedures were learned in the interrogation of Capt. Amagai. A brief description of aircraft carrying battleships is included.

PB 19120. U. S. WAR DEPARTMENT. Buda-Lanova Diesel marine engine model 6-DCMR-844. (Tech Manual 55-1070) Aug 1944. 152 p. Price: Microfilm-$2.00 - Photostat-$11.00
The subject engine is a 6-cylinder, 4-cycle, low-pressure diesel with a continuous power-output of 104 H.P. at 1200 r.p.m. It has overhead valves and seven crankshaft bearings. The engine is equipped with a cooling system in which fresh water, circulating through the cylinder-jackets, is colled by sea water. Another feature is a battery-operated starting motor. The engine is intended for use with a twin disc reverse gear which, however, is not part of it. The technical manual consists of five parts: 1. Introduction (brief general information), 2. Operating instructions, 3. Preventive maintenance and lubrication, 4. Maintenance overall (more than 100 pages covering removal, inspection and assembly of basic engine and accessories), and 5. Supplementary data (shipment, storage and parts-list). The book contains many photographs and drawings.

PB 18579. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. Engineer port repair ship. (Tech Manual 5-362). Oct 1944. 42 p. Price: Microfilm-50¢ - Photostat-$3.00
This manual is a general reference on engineer port repair ship crew units. It covers their mission, organization, equipment, training, and operations. It stresses the use of the ships and described their equipment. Photographs, diagrams.

WATER SUPPLY, SANITATION AND PUBLIC HEALTH

PB 11343. LETICH, JAMES L. Report of conferences on water purification held in the Office of the Surgeon General, Washington, and in the Office of the Engineer Board, Fort Belvoir, Nov. 30 to Dec. 2, 1942. (U. S. War Department. Chemical Warfare Service MD(EA) Memo rept 74). Dec 9, 1942. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
Included in this report is information regarding the use of o-Tolidine tablets, and the cooperation between the Engineer Board, Water Supply Branch, Fort Belvoir, Virginia, and the Medical Department Research Laboratory at Edgewood Arsenal. The work to be carried out by the Water Supply Branch in large scale purification methods is outlined.

PB 16663. RANNEY METHOD WATER SUPPLIES, INC. Excerpt from booklet. n.d. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Ranney type wells artificially inducing infiltration through the sands and gravels adjacent to a nearby stream are located at Point Pleasant, West Virginia; Charleston, Indiana; Louisville, Kentucky; and Newport, Indiana. Although Ohio River water, in addition to its bacterial load, is notorious for its odor, no phenolic tastes or odors have ever been noticed by any of the people whose water came from a Ranney-type well. Of importance to industries needing water for cooling is the fact that water obtained simultaneously from the several laterals of a Ranney type well is of different temperatures.

PB 17372. TREIBSTOFFWERK, RHEINPREUSSEN. Wasser-enthartungs-anlage, 10 Oct 30 - 19 Oct 44 (Water-softening plant). (MIS VII 67g 7003028) Oct 1944. 60 p. Price: Microfilm-$2.00 - Photostat-$4.00
This collection of documents contains correspondence in regard to bids for and plans of a feed-water plant for the synthetic fuel firm Treibstoffwerk, Rheinpreussen.

PB 16945. U. S. ARMY AIR FORCES. Improvised combat sanitation. (Tech. order 00-80B-1). Oct 1944. 27 p. Price: Microfilm-50¢ - Photostat-$2.00
Methods for improvising sanitary facilities from salvage equipment.

PB 17697. U. S. NAVY DEPARTMENT. BUREAU OF YARDS AND DOCKS. Manual for the operation and maintenance, sewerage systems and sewerage treatment plants of the Navy. (NAVDOCKS P-170) 1943. 48 p. Price: Microfilm-50¢ - Photostat-$4.00
This manual is designed to provide useful general information and instruction to the personnel charged with the responsibility of operating and maintaining sewerage utilities of the Naval Shore establishment. The first chapter is concerned with the general function and types of the principal elements of sewerage systems. The second chapter deals with the operation and maintenance of these systems.

PB 17696. U. S. NAVY DEPARTMENT. BUREAU OF YARDS AND DOCKS. Manual for the operation and maintenance, water supply systems of the Navy. (NavDocks P-172). 1943. 33 p. Price: Microfilm-50¢ - Photostat-$3.00
This manual is designed to provide information and instruction to personnel charged with the responsibility of operating and maintaining the water supply utilities of the Naval Shore Establishment. The first chapter discusses the general function and types of the principal elements of water works systems. The second chapter is concerned with the operation and maintenance of the systems.

PB 16949. U. S. WAR DEPARTMENT. Civil affairs guide; water supply and sewage disposal in Japan. (Pamphlet 31-61). 1945. 90 p. Price: Microfilm-$1.00 - Photostat-$6.00
This report presents information on the water supply and sewage disposal facilities in Japan, and presents courses of action for the pre-invations, combat phase, service phase, and civil phase. Tables present data, and a bibliography is included. Appended are maps showing spring areas, water supply and water works in Japan and in individual cities, and distribution of sewerage systems and sewerage treatment plants in the country and in individual cities.

PB 16873. U. S. WAR DEPARTMENT. Operation of sewerage and sewage treatment facilities at fixed army installations. (Tech. Manual TM5-665). Nov 1945. 175 p. Price: Microfilm-$2.00 - Photostat-$12.00
This Technical Manual is an operating and training guide for personnel who operate and maintain sewage collection, pumping, treatment, and disposal facilities at fixed Army installations. The material was compiled from standard texts, engineering and professional journals, manufacturers' instructions, and the operating reports of various municipal and Army utilities. Many photographs and diagrams are included.

PB 11494. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured German water dispenser. Mar 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes and evaluates a captured German water dispenser. It is of French manufacture and is inscribed "P. I. C. A. 'Le Carbochlore'." The apparatus weighs only 15 pounds empty. The device is presumably intended for dispensing drinking water in small quantities in cases where heavy chlorination is applied to effect rapid sterilization. It is doubtful whether the apparatus is of any practical military value, in view of its small capacity and limited application.

PB 19103. U. S. WAR DEPARTMENT. MEDICAL CORPS. Medical and sanitary data on Egypt. (Tech Bulletin MED 214) Feb 1946. 54 p. Available from Supt. of Documents. Price 20¢
Supervision of public health work in Egypt is the responsibility of the Ministry of Public Health, a strongly centralized organization which has its headquarters in Cairo, with various regional councils. General sanitation is primitive in most parts of Egypt. Even in large cities satisfactory water supplies are not provided for the poorer districts. Sewerage systems exist only in large towns and cities, and most of these are incomplete. Accumulations of garbage and rubbish, retained for fuel, increase the opportunities for the propagation of rats and other vermin. Sanitary control of milk and other food supplies is inadequate. Insects, flies, sandflies, lice, fleas, ticks, snails, and rats, all capable of transmitting diseases, are numerous. Anopheles mosquitoes transmit malaria throughout the country, and poisonous scorpions and snakes are common. Diseases of special military importance include malaria, dysentery, diarrhea, louse-borne and flea-borne typhus, venereal diseases, respiratory diseases, diseases of the skin and subcutaneous tissues, sandfly fever, dengue, infectious hepatitis, and injuries caused by heat. The cause and prevalence of these and other diseases such as filariasis, plague, and schistosomiasis are included. Appendices contain statistical data on hospitals, food consumption and diseases, a bibliography, and maps showing anopheles breeding in Egypt in 1942, and percentage of civilian population infected with malaria according to 1937 survey.

PB 19104. U. S. WAR DEPARTMENT. MEDICAL CORPS. Medical and sanitary data on Eire. (Tech Bulletin MED 215) Feb 1946. 54 p. Available from Supt. of Documents. Price 20¢
The present health program was initiated with the formation of the Department of Local Government and Public Health in 1924-25. The functions of the Department are diverse but include the administration of public health services, "Poor Law" medical services, National Health Insurance, and the compilation of vital statistics. Sanitation is primitive except in the larger cities and towns. The cities, on the whole, have satisfactory water supplies but the small towns and villages depend for the most part on pump wells. Rural supplies are apt to be unprotected and subject to pollution, and methods of sewage disposal in rural areas are frequently unsanitary. Even in the larger towns and cities, sewerage is inadequate and treatment is minimal. The major health problems of Eire are both medical and social. Over-crowding, poverty, and malnutrition influence morbidity and mortality statistics. Typhus occurs endemically in small, circumscribed but widely scattered outbreaks. Typhoid fever, infantile diarrhea, scabies, and similar diseases are common, and tuberculosis is a serious problem. Information on the cause, location, and prevalence of various diseases is given. Appendices contain statistical data, a list of the hospitals in Ireland in 1938, and a bibliography.

PB 19101. U. S. WAR DEPARTMENT. MEDICAL CORPS. Medical and sanitary data on Manchuria. (Tech Bulletin MED 216) Feb 1946. 88 p. Available from Supt. of Documents. Price 20¢
Public health in the former puppet Empire of Manchukuo was administered by the Board of Health of the Department of Welfare in Ch'ang-ch'un. Public health in the Kwantung Leased Territory was under the jurisdiction of the Police Division of the Kwantung Bureau controlled by the Japanese Ambassador in Ch'ang-ch'un. Public health measures in the South Manchuria Railway zone were participated in by the Local Affairs Department of the South Manchuria Railway. Water is found in adequate quantities in the greater part of the country with the exception of the Barga Plateau of northwestern Manchuria, and the western part of the central plain. Modern waterworks are found in cities and larger towns, but even in these settlements only a fraction of the population may be supplied by these facilities. All water, regardless of its source, must be considered unsafe for drinking or bathing until adequately treated or unless the supply systems are properly controlled by responsible military authorities. Throughout Manchuria human excreta are used as fertilizer, and in consequence there is widespread soil pollution which results in contamination of locally grown fruits and vege-

tables, and in pollution of surface water supplies. Sewerage systems, many of which are inadequate, are known or believed to be established in about 21 to 24 cities and towns. Mosquitoes capable of transmitting malaria are found throughout Manchuria. Other disease-carrying arthropods, including several species of flies, fleas, mites, and ticks, are indigenous. Rats are very numerous. Well equipped hospitals are found in the larger cities and in some towns, but hospital facilities in Manchuria, although more plentiful than in other parts of China, are scarce compared with those available in Western countries or in Japan, and must be considered inadequate for the actual needs. The diseases of greatest military importance are amebic and bacillary dysentery, diarrhea and enteritis, plague, cholera, venereal diseases, typhus, skin diseases, infectious hepatitis, trench foot, and frostbite. Other diseases endemic in Manchuria or introduced from other areas, as, relapsing, epidemic hemorrhagic, and sandfly fevers, Japanese and Russian encephalitis, Kala azar, and filariasis, etc., are also discussed as to cause and prevalence. Vital statistics are included in this study, and appendices contain statistics on water supply, drug addiction, hospitals and clinics, and various diseases. Maps show important areas for plagues and hemorrhagic fever, and a full bibliography is appended.

PB 19102. U. S. WAR DEPARTMENT. MEDICAL CORPS. Medical and sanitary data on Uganda. (Tech Bulletin MED 197) Feb 1946. 38 p. Price: Microfilm-50¢ - Photostat-$3.00

The people of the Uganda Protectorate are exposed to a variety of dangerous diseases which are important, not only from the standpoint of health, but also in respect to the entire economy of the Protectorate. Despite the difficulties involved, the Medical and Sanitary Services of the Protectorate have made commendable progress in improvement of the people, directly by means of its European personnel, and indirectly by the training of intelligent native workers who will have increasingly important parts in the public health system as a whole. Hospitals are maintained by the government and by mission groups; the number is not yet sufficient, but new institutions are being built. Only two cities in Uganda are known to have waterworks in which the water can be considered safe. All other water supplies doubtless are grossly contaminated. Five to six places in Uganda have some sort of system for the disposal of sewage or excreta. In all other places disposal is achieved by means of bucket privies, pit latrines, or pollution of the soil. Malnutrition and avitaminotic conditions are common, sometimes because of ignorance of balanced diets on the part of natives, and sometimes because of actual famine. Milk is produced chiefly for Europeans, and probably is unsafe. Diseases of military importance include malaria, relapsing fever, dysentery, venereal diseases, diseases of the skin and eyes, and cerebrospinal meningitis. Other diseases, such as trypanosomiasis, influenza, plague, typhus fever, filariasis, yellow fever, and cholera, are discussed as to cause and prevalence. Appendices contain statistical data, a bibliography, and maps showing the incidence of plague per 100,000 of population during the period 1931 through 1936, locations from which new cases of trypanosomiasis were reported during the period 1935 through 1941, etc.

PB 18407. U. S. WAR DEPARTMENT. QUARTERMASTER BOARD. Report of study of chamber, fumigation, methyl bromide, portable QMB-T-1502. (Project S-120) Sep 1944. 6 p. Price: Microfilm-50¢ - Photostat-$1.00

Tests indicate that the subject chambers (designated as type "A" and type "B") demonstrate characteristics similar to those of chamber type "C", the standard of comparison, with respect to: ease of assembly and disassembly, portability, gas tightness, weight, personnel requirements and accessory equipment.

MISCELLANEOUS

German

PB 14672. BREMECKE and KAUSCH, E. Technische Hochschule, Berlin, Institut fur Vermessungskunde. Schwingungsuntersuchung am Olympia-Glockenturm. (Vibration measurements on the Olympia). (ALSOS Mission, Klotter File No. 3E) 1936 20 p. Price: Microfilm-50¢ - Photostat-$2.00

The steel construction of the belfry showed a certain perpendicular elasticity which in turn gave rise to some apprehension lest there be a resonance between the individual vibration of the tower and that caused by the full swing of the bell. For this reason a very exact vibration and concussion analysis was made with the Askania three-component-seismometer. However, even these very exact measurements were not satisfactory enough since the character of the problem required an accuracy of 0.2 to 0.3 mm. For this purpose a new arrangement of the measuring instrument was devised which is used in geodetic-astronomic measurements requiring he highest degree of accuracy. The final result of these investigations indicate that no resonance danger exists. A table gives the frequencies, amplitudes, and velocities of the tower vibrations with and without the ringing of the bell, and two charts show the seismometer analysis of the above findings. Work done at the Technische Hochschule, Berlin, Institut fur Vermessungskunde.

PB 16139. BRITISH INTELLIGENCE OBJECTIVES SUB-COMMITTEE. B.I.O.S. Preliminary reports; list no. 133. 1945. 10 p. Price: Microfilm-50¢ - Photostat-$1.00

Summaries of reports, nos 2746 - 2766, in tabular form, giving names of firms and persons in Germany, visited in October-November 1945, locations, principal products or interests, condition of plants, etc. This report covers the following: Demag-Crecifarfabrik, near Dusseldorf (manufacture of cranes); Harburger Eisen-Bronze Werke A.G., Harburg, near Hamburg (extruders for Mipolan and Igolit); Alfelder Eisenwerke, Alfeld near Hannover (concrete mixers, tar sprayers, machines for building, roads, etc.); Schloemann, A.G. Krummenweg (rolling mills); Albert Wildfang, Gelsenkirchen (zinc die casting); Mannesmann Rohren Gesellschaft, Duisberg (use of Cr Mo steel for pipes); Mannesmann Werke, Forschunginstitut, Duisburg/Hockingen (research on steel); Werkstatten fur Prazisionsmechanik, Britz Berlin (spinnerets for textile manufacture); Kunstseide-Maschinen und Apparate Bau, Berlin/Tegel (textile machinery); Martin & Fagenstecher, Krefeld-Linn (furnaces); Spinnstoffabrik Zehlendorf, Berlin (yarn manufacturers); Waggonfabrik Talbot, Aachen (hopper wagons and goods wagons); L. Rohrbach & Co., Berlin (pressure die castings); Professor A. Mullenhoff, Lubeck (pipe stresses, research); Gebruder Bohlin, Hamburg (pipe work fabricators and sheet metal workers); Holsatia Sperrholzwerke, Hamburg (plywood); I. Bruning & Sohn, Luneburg (plywood); Schumacher & Co., Remscheid, Reinshagen (engineers' tools); H. Steinhoff, Dusseldorf, Oberkassel (engineers' tools); Oswald Forst GmbH, Solingen (broaching and milling machines); and Deutsche Norton Fabrik, near Koln (abrasives).

PB 14674. DÖRR, JOHANNES. Der unendliche, federnd gebettete Balken unter dem Einfluss einer gleichförmig bewegten Last (The infinite, elastically supported beam under the influence of a uniformly moving load). 1941. 56 p. Price: Microfilm-$1.00 - Photostat-$4.00

Doctor's Thesis, Technische Hochschule Darmstadt in German script. The static and dynamic problems of the elastically supported beam have been the object of numerous mathematical investigation since they are of great technical importance, for instance in the determination of stress resistance of railroad rails lying on the ground. The static problems are relatively easy to solve, whereas the solution of the dynamic problems is much more difficult and has been possible so far only under simplifying assumptions. The present thesis attacks the problem by assuming first a one-sided infinite beam oscillating under the impact of a load of uniform velocity and then turns to the even more involved problem of a two-sided infinite beam. By methods, derived largely from the theory of functions, it was found that there exist two ranges of velocity $v < \sqrt{\frac{4cEJ}{m^2}}$ and $v > \sqrt{\frac{4cEJ}{m^2}}$ whereby c connotates the spring constant, m the mass of the beam, EJ bending resistance of the beam, and v the velocity of the moving load. Within the first range there exists a stationary wave group running with the load along the beam, while within the second range of velocities length of the wave groups increases with the time.

PB 13763. DUMERTON, and others. Interrogation of Albert Speer, former Reich Minister for Armaments and War Production, Jun 13, 1945. Jul 1945. 7 p. Price: Microfilm-50¢ - Photostat-$1.00

The subject was asked by representatives of the Ministry of Supply to state his views on the following questions: 1. Whether A.A. ground defense should be an Air Force or an Army responsibility, with particular reference to which was the better from the point of view of A. A. weapon development. 2. What the basic reasons were for placing Coast Defense under the Navy rather than under the Army. 3. Why no Government Armament Design Department existed in Germany, and whether he now thought that such a department would have been an advantage. 4. Whether he agreed that at the commencement of the war the technical initiative in weapon development lay with Germany, and that by the end of the war this had very largely passed to the Allies; also if he agreed with the above, whether he had any views on the main reasons why Germany had lost this lead. 5. Destruction or concealment of designs, tools, etc. 6. Three-letter code. War Office representatives asked the following questions: 1. How was payment made to contractors working for the organization Todt; 2. Had subject any knowledge of "Adrema"; 3. What is the Inspection Organization in Germany; 4. Did the Speer Organization carry out any reconditioning of service equipment; 5. Research and development - what is general policy; 6. In view of the above statement on the almost complete control of development of Army equipment by industry, how was the interchange of information on defects and performance between the factory and the field carried out. 7. Does standardization in production produce sterilization?

PB 17368. Eidgenössische Materialprüfungs - und Versuchsanstalt für Industrie, Bauwesen und Gewerbe Zürich (Swiss federal material testing laboratory and research institute for industry, civil engineering and crafts, Zurich) Material testing report. 1939. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
This report tabulates the results of quality, tensile strength, and Brinell hardness tests on round iron 4 mm diameter, 2,4,6 and 8 times cold bent to 180° according to system SD and straightened.

PB 7834. GEIGER, FREL W. Interrogation of Prof. Tollmien of Gottingen University. (Army Air Forces. Tech Intel Rept 1-78). 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
This report contains material on the following subjects: (1) Can shock waves occur in frictionless flow past a convex surface (i.e. if there is no boundary layer); (2) the development and extension of the method of characteristics; (3) differential gas dynamics; (4) a numerical method for subsonic speeds.

PB 13079. GERMANY. REICHSFORSCHUNGSRAT. Correspondence and reports of the Military Geological Institute (Wehr-Geologen Amt.) including report of progress on research in terrain studies with aerial photographs). (RFR 304). 1944. 43 p. Price: Microfilm-50¢ - Photostat-$3.00

PB 13078. GERMANY. REICHSFORSCHUNGSRAT. Fachsparte handbauwissenschaft und allgemeine Biologie Sitzungen. Tagungen, Besichtigungen und Besprechungen. (General correspondence concerning agricultural projects, plans for conference of agricultural specialists). (RFR 301). 1944-1945. 27 p. Price: Microfilm-50¢ - Photostat-$2.00

PB 13160. GERMANY. REICHSFORSCHUNGSRAT. Prof. Dr. Tomaschek. München. (Administrative correspondence with Prof. Tomaschek concerning the employment of an Indian physicist). (RFR 54). 1941. 4 p. Price: Microfilm-50¢ - Photostat-$1.00

PB 14960. HEYES, J. and FISCHER, W. A. Mitarbeit an der Errichtung einer technischen Anlage zum elektrolytischen Polieren. (Cooperation on the construction of a plant for electrolytic polishing). (Kaiser Wilhelm Institut für Eisenforschung). (ALSOS Mission, Hoyt File 199). 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
The development of a method for electrolytic polishing of the inside of machine gun barrels is described for which the German Army expected to build a plant.

PB 15259. JAYME, G. Mikro-Quellungsmessungen an Zellstoffen. (Micrometric determination of the swelling of fibers) (Reprint from Der Papier - Fabrikant - Wochenblatt für Papierfabrikation, June, 1944). (Supp to FIAT Rept 56, PB 1130) Jun 1944. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
This paper reviews literature dealing with micrometric determination of the swelling of various fibers and describes a new volumenometric method developed by the author. The results of measurements of the swelling in water and other media are tabulated.

PB 6349. OZOL, M. J., and CHAFFEE, C. C. WIFO Berlin evacuated personnel at Munich. (FIAT Final Rept 401). Oct 1945. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
The principal duty of WIFO was to establish and maintain industries, trades and crafts devoted to the furtherance of tests and research work for the benefit of the German State. WIFO built a new system of storage tanks for the collection, mixing and distribution of oil products to replace the harbor storage facilities. Tables show fuel storage capacity of the various WIFO installations after 1938. The contents of this report supplement and supersede any information presented in Ordnance Progress Report No. 37, entitled "Distribution of fuels and lubricants to the German military forces"

PB 14671. RAUSCHE, E. Berechnung der glocken-schwingzahl für die Olympia-glocke in Führerturm des Reichssportfeldes. (Calculation of the swinging rate of the Olympia-Bell in the Fuhrer tower of the Reich sport stadium). (ALSOS Mission, Klotter File 3D) June 1936. 24 p. Price: Microfilm-50¢ - Photostat-$2.00
After determining time of one vibration the calculation of the force of the vibration shows that same does not coincide with the swinging of the bell which follows a simple sine curve. Rather its curve is obtained by superimposing two sine curves, one running with the stroke of the bell, the other one with the threefold of it. The second part of the report covers the calculation of the resonance vibration of the tower and it was found that no resonance danger with regard to the bell swinging existed. The principles of the calculations are well applicable for determining similar problems. Drawings are included.

PB 7908. STEADMAN, S. J. and others. Continental gummiwerke A. G., Hanover. (PIOS Final Rept 69) n.d. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
This report deals mainly with items of chemical warfare interest which were produced at the Limmer factory on the outskirts of Hanover. Here were manufactured synthetic rubber spread and calendered fabrics for gas protective clothing. Among the articles treated are: civilian respirator facepieces (VM.40), facepieces GM.30 and GM.38, the Schnell mask and fabric for anti-gas clothing. The appendixes list the mixes going into the composition of the rubber spreads used. Photographs and diagrams are included.

PB 16791. TIETZE. Development of an oxygen transfer apparatus without a transfer pump. (Developed by Dragerwerk, Lubeck, Germany). Translation from German). 1945. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
This report covers the development of a syster of transfering oxygen from pressure cylinders to canisters without using a transfer pump based on the difference between oxygen pressure in the cylinder (200 ats) and canisters (160 ats). Six cylinders are connected directly to the canister filling apparatus for this purpose. Graphs and drawings. May not reproduce well.

PB 13855. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Engineer Board Letter report, Extinguisher, fire, carbon tetrachloride, 2-liter, German. (Reg. 2740.) Jun 1945. 2 p. Price: Microfilm - 50¢ - Photostat - $1.00

This is a report of the examination and evaluation of the above mentioned German fire extinguisher. This is a hand-operated pressure-type. The cylinder is pressurized with air from an external source which is introduced through the discharge nozzle which is threaded for that purpose. It was not considered superior to standard American extinguishers of the same general type. One photograph.

PB 13861. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Engineer Board Letter report, Extinguisher, for oil fires, hand-operated, German. (Rep 2752.) Jun 1945. 3 p. Price: Microfilm - 50¢ - Photostat - $1.00
Report, giving brief description of this German fire extinguisher which is of 2-liter capacity, carbon tetrachloride type, consisting essentially of a cylinder with a handle, and a discharge head which incorporates a screw-type needle valve and a discharge needle. It has no advantages apparently over standard American equipment. Two photographs.

PB 13856. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Engineer Board Letter report, Extinguisher, fire, "Stop-Fire", sodium type, 3-gallon, German. (Rep. 2741) Jun 18, 1945. 3 p. Price: Microfilm - 50¢ - Photostat - $1.00
This soda-acid type German fire extinguisher consists of a 9-liter capacity cylinder for holding the soda water solution, an acid bottle suspended from the top of the cylinder, and a discharge head which contains a discharge nozzle and a screw-type valve which seals the top of the acid bottle. To operate, the valve is turned to the left which opens the acid bottle. The cylinder is then turned upside down which mixes the soda and acid solution, causing the mixture to discharge as do other extinguishers of this type. The advantage of this extinguisher is the fact that due to the acid bottle being sealed, the unit can be transported and handled while still charged without having to exercise undue care. Two photographs.

PB 15180. WEBER, W. Überschlagsspannungen von isolatoren unter erhöhten Luftdruck (Sparking voltages in insulators at increased atmospheric pressure). (Reprint from "Archiv fur Elektrotechnik", Vol. 12, 1941). (Supplement to FIAT Rept 514, PB 3477). 1941. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
This paper gives the results of the investigations into sparking voltages, spark length from 42 to 355 mm., in the air and at pressures up to 4 at.

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PB 18326. BEIER, D. C. and others. A follow-up study of the study of the efficiency of the projection eikonometer test in predicting the performance of stereoscopic height finder observers. (Applied Psychology Panel: Selection and training of rangefinder and radar operators. Rept 13). (NDRC Applied Psychology Panel 371. OSRD Rept 4352) Nov 1944. 14 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes a follow-up study of the effectiveness of the Projection Eikonometer -Stereo-Vertical Test as the final test in a selection battery designed to eliminate potential failures in stereoscopic height finder performance. Data obtained from two classes were compared with data from eight subsequent classes and a comparison was made of the relationship of scores on the Projection Eikonometer to two Height Finder School performance criteria - the variability score and the combined score, which is the sum of the variability score and the course are a score. Results from the two groups were practically identical. Both studies show approximately the same low percentage of failures when the Projection Eikonometer was used as the final selection instrument.

PB 19481. JOHNSON, WALTER A. Mechanical methods of hog flaying: Final report. (OPRD Res Rept, Project 526) Aug 1945. 24 p. Limited free distribution; thereafter, microfilm-50¢ - photostat-$2.00
This report is a résumé of the tests, results and conclusions obtained by members of the Engineering College Staff of Cornell University working under the sponsorship of the War Production Board to design and develop better methods and equipment for the skinning of hogs. A knife with dull serrated edges and oscillating blade was developed. This tool and the semi-automatic flaying machine should be put to commercial use to bring out their possibilities for further development. Drawings of rotating skinning blades, vibrating skinning knife, skinning table, etc., are shown. Photographs indicating the hanging position of the animal during the flaying operation and of equipment used are included.

PB 15515. LOUCKS, ROGER B. An evaluation of various psychological performance tests for altitude chamber research. (AAF School of Aviation Medicine, Randolph Field, Texas. Project 202, Rept 1) Aug 1944. 30 p. Price: Microfilm-50¢ - Photostat-$2.00
An experimental technique has been developed by means of which decrements in psychological performance due to a simulated altitude of 15,000 feet can be detected within a single experimental session. The technique eliminates the extensive preliminary training which has commonly been employed in previous studies. A comparison was made of four psychomotor pursuit tests, differing in complexity at 18,000 feet simulated altitude. One test registered a deterioration in performance in 90% of the group. The next best test showed a decrement in only 56% of the subjects. Appendix contains tables and copies of tests. Photographs show models used in tests.

PB 14486. MENDELSON, HERBERT. A statistical method of determining noncombatant gas mask size distribution. (Chem Warfare Serv, Tech Div Memo Rept T.D.M.R. 690). 1943. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
An approximate percentage distribution of gas mask sizes required for the civilian population was worked out based on census figures for age groups, and fittings made on small groups of civilians and army personnel.

PB 10282. MYERS, E. J. Fire extinguishing system on the 85-foot AAF sea rescue boat. (AAF. Air Technical Service Command. Eng Div TSEPE-6b1-14-1). 1946. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
This is a report of a study of fire protection on the above named boat and includes a number of recommendations for changes and modifications in the equipment.

PB 17570. OSBORNE, M. F. M. and HART, S. D. Transmission, reflection, diffraction and guiding of an exponential pulse by a steel plate in water, II. Experiment. (Naval Research Lab Rept S - 2564) Jul 1945. 53 p. Price: Microfilm-$1.00 - Photostat-$4.00
In this report are given the results of an experimental study of the interaction of an explosion wave with a water-backed steel plate. Detailed data are given showing the dependence of the transmitted and reflected waves on the angle of incidence, and of the diffracted wave on position behind the plate. These data are fundamental to the study of damage due to underwater explosions, and are also illustrative of the use of the explosion wave in acoustical research. The plate acts as a filter, removing the high frequencies from the transmitted wave and the low frequencies from the reflected wave. The plate also acts as a wave guide. Thirty-three graphs, one photograph, and a bibliography are included.

PB 16085. OSBORNE, M. F. M. and HART, S. D. Transmission, reflection, diffraction and guiding of an exponential pulse by a steel plate in water. II. Experiment. (Naval Res Lab Serial 12. Sound Div Special Res Sect Rept S-2564-814270.) 1945. 52 p. Price: Microfilm-$1.00-Photostat-$4.00
In this report are given the results of an experimental study of the interaction of an explosion wave with a water-backed steel plate. Detailed data show the dependence of the transmitted and reflected waves on the angle of incidence, and of

the diffracted wave on position behind the plate. These data are fundamental to the study of damage due to underwater explosions, and are also illustrative of the use of the explosion wave in acoustical research. The plate acts as a filter and as a wave guide. As a consequence of dispersion in the guided waves, a precursor precedes the explosion wave as it travels along the plate. The dependence of the frequency, length, and amplitude of this precursor upon orientation of the plate, position and time has been determined. Table, photograph, diagrams, graphs and references are included.

PB 15624. PEASE, ROBERT N. and ORENYO, CHARLES. Results of canister tests against carbon monoxide: Progress rept to December 31, 1944. (OSRD Rept 4896). Apr 1945. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
The method of testing CO canisters is briefly described. Some test data on experimental CWS (MIT) M10 assault canisters (CO) are given. Development of a long-life CO canister is discussed. The efficiences of canisters of various shapes and sizes, and containing various catalysts and driers, were determined against carbon monoxide in air over a range of conditions. Tables are given. This is a progress report under contract with Princeton University.

PB 12146. THE PSYCHOLOGICAL CORPORATION. A speech interview for the selection of telephone talkers. (Speech Communication Project. Rept 1. OSRD Rept 1769) Aug 1943. 24 p. Price: Microfilm-50¢ - Photostat-$2.00
A speech interview was developed for the purpose of selecting telephone talkers for a ship. This interview was made to include samples of different kinds of speech, memorized material, impromptu descriptions, repetition, and reading. Tables of data and rating sheet are included.

PB 14221. RICHARDS, P. I. Probability formulas for simultaneous periodically recurring events. (Harvard Univ Radio Res Lab Rept 411-171) May 1945. 36 p. Price: Microfilm-50¢ - Photostat-$3.00
The results of this report are applicable to any problem which reduces to a question of the overlap of rectangular waves. Formulas are derived for the probability that two events, each recurring at a definite period and lasting for a definite length of time, will occur simultaneously at least once in some given time interval. If desired, the condition may be added that the simultaneous occurrence itself must have at least a given minimum duration. This report included graphs.

PB 15640. ROUSE, HUNTER. Part I: Wind tunnel studies of fog-dispersal methods. Part II: Wind tunnel studies of gas diffusion in urban districts. Part III: Wind-tunnel studies of air flow over mountainous terrain. (OSRD rept 6341) Nov 1945. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
Three studies made at Iowa Institute of Hydraulic Research, University of Iowa, which summarize previous reports on the three projects. Wind tunnel study of the introduction of heat upwind from the runway for dispersing fogs developed an equation for the evaluation of heat requirements. Burner installations in the Aleutians and in California were tested. Study was made also of heat diffusions by single wind curtains and baffles as a more economical method of heating the runways. Bibliography of 9 items included. Low velocity wind tunnel studies of gas diffusion in urban areas were made to evaluate use of gas in chemical warfare. Bibliography of 5 items is included. Turbulence and velocity distribution of winds over mountainous areas was investigated, using 3 geometrical bodies to study types of distortion, by use of a sensitive Pilot tube. Bibliography of 2 items. See also PB 15634 for the complete report on fog dispersal.

PB 15634. ROUSE, HUNTER and others. Wind tunnel studies of the diffusion of heat by single wind curtains and baffles to July 10, 1944. (OSRD report 4334) Nov 1944. 21 p. Price: Microfilm-50¢ - Photostat-$2.00
These studies on the behavior of a single heated wind curtain were made on a scale model small enough so that a variety of conditions could be investigated. The results can be extrapolated to full scale and they show that remarkable reductions in the heating requirement can be expected if a wind curtain is combined with a burner system." This is a progress report under Contract 10-481, CEMsr-1243 with the Iowa Institute of Hydraulic Research. The experiments are to be used to determine the feasibility of dispersing fog over runways at airports by the use of such a system. Diagrams are included.

PB 17513. SCHMID, CARL G. Quality control at the Lukas-Harold Corporation (Carnegie Institute of Technology. Quality Control Reports 4) Aug 1945. 10 p. Limited free distribution; thereafter, microfilm-50¢ - photostat-$1.00
This report, one of a series designed to aid American war industries in utilizing improved methods of statistical quality control, describes procedure in using p (fraction defective) and X charts in the Harold Lucas Corporation, operator of the Naval Ordnance Plant at Indianapolis, and a major producer of the Norden bombsight. A number of inspectors were sent to the intensive course in quality control by statistical methods held at Purdue University, and upon their return these men were used in key positions to train other persons. A shop manual, which set forth in simple language the objectives of statistical control and the fundamental procedures for obtaining it, supplemented lectures coupled with applications on the floor. Sample quality machine control charts are given.

PB 20136. SHAW, LAWRENCE W. Double sampling inspection plans. (Aberdeen Proving Ground. Ballistic Research Lab. Rept 313). Oct 1942. 137 p. Price: Microfilm-$1.50 - Photostat-$10.00
This report contains tables of inspection plans for the use of a consumer in performing non-destructive acceptance tests and inspections on material presented in a steady flow from a manufacturing process. The plans were primarily designed for the use of ordnance inspectors in the acceptance of sublots of ammunition components. The sets of recommended plans provide for reductions from the initial amount of inspection. The principles used in the construction of these tables are given, and source tables of wide scope are included to permit the selection of inspection plans on modified principles. The importance of the operating characteristic of an inspection plan is stressed. Comparisons of alternative inspection plans are made by means of their operating characteristic curves. The operating characteristics of all the plans recommended are exhibited. Tables, graphs, and bibliography.

PB 11650. SCHERER, R. C. Result of test of oxygen equipment for bail-out purposes. (Army Air Forces, Experimental Engineering Section. EXP-M-54-671-72). 1942. 1 p. Price: Microfilm-50¢ - Photostat-$1.00
This document reports on results of tests of oxygen equipment for bail-out purposes from airplanes using Army Air Forces standard life vest as a low-pressure source of supply. The tests were made with two steel cylinders containing nine liters of oxygen and connected to the standard life vest.

PB 16538. TOLENTINO, J. G. Flight tests on container, message, illuminated, Dayton Mfg. Co. Part #1553-2. (AAF Expt Eng Sect EXP-M-54-656-603.) 1942. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Flight tests on message container, comprising message chamber tube, removable lamp battery cartridge, and a cap with provisions for streamer attachment. Different types of streamers and chutes were tested with it during day and night flights, at a speed of 150 m.p.h. and 1000 feet above the ground. With a 6" x 6" one-pocket streamer, no rubber bumper is necessary for the protection of the container when landing. Illumination for night time operation is satisfactory. Chutes are not easily detected after landing. Illuminated message container should be standardized to replace types A-6 and A-7 message containers.

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